

The Milbank Memorial Fund

QUARTERLY

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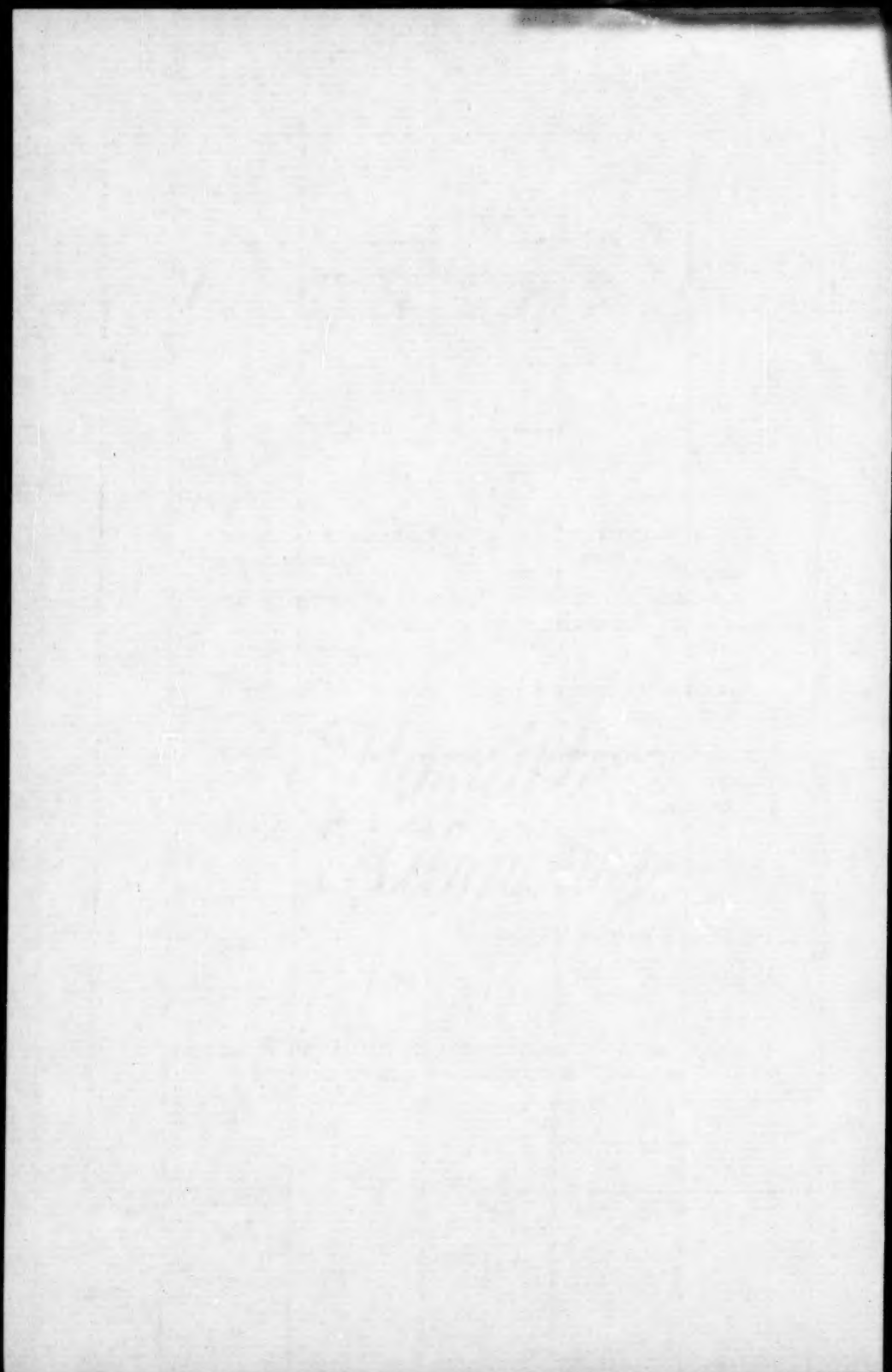
Vol. XXXI

JANUARY 1953

No. 1

Edited by the Technical Staff

Published quarterly by the MILBANK MEMORIAL FUND, 40 Wall Street, New York 5, New York. Printed in the U. S. A. Subscription: \$1.00 a year.



IN THIS ISSUE

THE paper "Characteristics of Diabetics as Revealed in a General Morbidity Study" by Katherine Simon presents an analysis based upon cases reported in the morbidity study in a sample population of the Eastern Health District of Baltimore.

The position of the diabetic in the household, the year and age at first diagnosis of the condition, and the first signs of illness are shown for this study. Persons with diabetes were also classified according to the degree of severity of their condition and the amount of medical care they utilized. Data are presented which reveal that males had a greater risk of disability from diabetes than did females.

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In the article "The Changing Focus of Differential Fertility Research: The Social Mobility Hypothesis" by Charles F. Westoff, the past history of research in this field is reviewed and classified according to its objectives and results. The trend of this research is observed to be moving away from the descriptive stages and to be oriented increasingly toward the investigation of "causes." Particular attention is devoted both to the theoretical considerations and the fragmentary, empirical evidence which would justify the inclusion of the broad subject of social mobility in future intensive studies of the causes of fertility differences. Social mobility, viewed in both its objective and subjective dimensions, is hypothesized to be not only an important factor influencing individual decisions to limit the size of family, but also a cause of social class differentials in fertility, on the assumption that mobility and opportunities for

mobility are found in different degrees throughout the American class structure.

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The paper contributed by Jerzy Berent on the "Relationship Between Family Sizes of Two Successive Generations" is addressed to the question of the effect on fertility of the parents' respective family sizes. In other words, does family size tend to run through generations? Statistical analysis of a sample of English marriages reveals a positive and consistent, though relatively small, relationship between the two generations' patterns of family size. The introduction of occupational stratification as a control factor indicates that the relationships found are independent of social class. A distinction is also made between those couples who practiced birth control and those who did not. The results seem to lead to the conclusion that human fertility is both genetically and culturally inheritable.

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One of the hypotheses included for testing in the Indianapolis Study was: "The greater the extent to which interest in children is a matter of personal satisfaction, the higher the proportion of couples practicing contraception effectively and the smaller the planned families." The analysis of the data on this hypothesis is presented in this issue in the article "The Interrelation of Fertility, Fertility Planning, and Ego-Centered Interest in Children," by Marianne DeGraff Swain and Clyde V. Kiser. This is the eighteenth of a series of reports appearing under the general title "Social and Psychological Factors Affecting Fertility."

CHARACTERISTICS OF DIABETICS AS REVEALED IN A GENERAL MORBIDITY STUDY

KATHERINE SIMON¹

DIABETES mellitus as a public health problem has become more important because of the aging of the population. Its importance in public health is clearly illustrated by a survey conducted in Oxford, Massachusetts, where 71 per cent of the total population, 3,516 persons, had urine tests and blood sugar examinations. This study was initiated with the aid of the State and district medical societies, the State and local boards of health, and the local physicians. The study was conducted by personnel assigned by the United States Public Health Service (1). A total of seventy cases of diabetes was discovered in this study. Forty were previously known. The fact that thirty cases were newly discovered indicates the need for public health endeavor in this field.

This particular paper presents a description of diabetic persons reported in a sample population observed from two to five years in the Eastern District of Baltimore. These persons are described with respect to position in the household, age and year of diagnosis, and first symptoms or complaints of illness. Severity of illness, medical care, and amount of disability during observation are also described.

DATA AND METHOD OF STUDY

The data are cases of diabetes reported in a sample of families living in the Eastern Health District of Baltimore during the period June, 1938 to May, 1943. Briefly, the method of study was as follows: Families living in thirty-four city blocks were visited at monthly intervals to obtain a record of illness among their members. In seventeen of the thirty-four city blocks the families were visited over a period of five years; in the other seventeen visiting was continued for only three years in families where no persons with chronic disease were reported during that period.

¹ From the Milbank Memorial Fund.

At the time that visiting was discontinued in seventeen of the city blocks first canvassed in 1938, a new canvass was made in thirty-four additional city blocks in the Eastern Health District. The method of sampling was the same as that utilized in the first canvass of 1938 (2). The purpose of visiting families in the new city blocks was to increase the number of chronic-disease cases for purposes of observation and study. The new blocks were canvassed in July, 1941 and families which reported one or more cases of chronic disease in them were observed until June, 1943, when the entire study was terminated. In this analysis, cases of diabetes reported in the canvass of the new city blocks are combined with those reported in the thirty-four blocks canvassed in 1938. In all there was a total of eighty-nine persons with diabetes, two of whom were lodgers. For most of this analysis the lodgers are excluded because it was believed that information concerning their illness was less complete than for family members.

The instructions for the use of the family visitors contained a list of the more common chronic diseases about which special inquiry was to be made. This special information included date of onset of the first symptoms of the disease, their nature, the date first diagnosed, and whether the diagnosis was made by a private physician, at a clinic, or at a hospital. Illnesses that were reported as chronic were asked about on each subsequent visit to the family. Inquiry was made concerning the amount of discomfort and disability suffered from the condition since the last visit and the amount of medical care received for it.

The causes of chronic illness as reported by the family informants were submitted to the attending physicians for confirmation or correction. The cases which had clinic attendance and those which had hospital admissions were also checked against the records of the clinic or hospital where the service was given. The only exception to this procedure was for cases hospitalized outside the City of Baltimore.

In order to make the illness record more objective and thus

increase the accuracy of information, a form was devised for recording on a calendar basis the onset and duration of cases of illness, the onset and duration of disability, the number of days confined to bed, and the number of days in the hospital.

Disability was defined as inability to pursue usual activity such as working, attending school, doing housework, or other usual activities.

It should be emphasized that cases of diabetes included in this analysis are those reported by the family, all of which have been diagnosed either by a private physician, at a clinic, or in a hospital.

DESCRIPTION OF PERSONS WITH DIABETES MELLITUS

Table 1 presents the position of the diabetic person in the household. The total number of cases included sixty-two females and twenty-seven males. In 20 per cent of the total cases a male head of the household was a diabetic. Forty-six per cent of the persons with diabetes were wives, and an additional 17 per cent of the total were classed as female heads of households. The preponderance of cases of diabetes among females may be due to the fact that there are more unrecognized diabetics among males than females (3).

It was thought to be of some interest to examine the eighty-seven persons with diabetes mellitus observed in this study in relation to the period of time in which the condition was first

Table 1. Percentage distribution of persons with diabetes as to their position in the household. Eastern Health District of Baltimore.

POSITION IN THE HOUSEHOLD	PER CENT	NUMBER OF PERSONS
TOTAL	100.0	89
Male—Head of Household	20.2	18
Female—Head of Household	16.9	15
Wife	46.1	41
Son or Daughter	6.7	6
Other Relative	7.9	7
Lodger	2.2	2

diagnosed.² These data are shown in Table 2. Fourteen per cent of the cases were diagnosed before 1930. In this group, two persons had been diagnosed as having diabetes in 1918; another two were diagnosed in the early 1920's. The remaining seven cases had a first diagnosis in the late 1920's. Thirty-seven per cent of the cases were diagnosed during the years 1930-1937, and an additional 49 per cent of the patients were diagnosed as being diabetic during 1938-1943. Eighteen of the cases diagnosed during the five study years, June, 1938-May, 1943, were new cases, that is, the first detection of the condition occurred during their observation.

Table 2. Persons with diabetes classified according to the year in which diabetes was first diagnosed. Eastern Health District of Baltimore

YEAR OF DIAGNOSIS	NUMBER OF CASES ¹
TOTAL	87
Before 1930	11
1930-1937	29
1938-1943	39
Unknown Date	8

¹ Excludes two lodgers.

Table 3 and Appendix Table 1 present the distribution of

Table 3. Percentage distribution of males and females with diabetes according to the age at which the first diagnosis of the condition was made.¹ Eastern Health District of Baltimore.

AGE AT FIRST DIAGNOSIS	BOTH SEXES	MALE	FEMALE
	Per Cent		
ALL AGES	100.0	100.0	100.0
Under 35	5.1	16.0	0.0
35-39	11.4	12.0	11.1
40-44	11.4	4.0	14.8
45-49	6.3	4.0	7.4
50-54	20.2	24.0	18.5
55-59	16.5	20.0	14.8
60-64	13.9	12.0	14.8
65-69	5.1	4.0	5.6
70-74	7.6	4.0	9.3
75+	2.5	0.0	3.7

¹ Excludes eight persons of unknown age and two lodgers.

² The two lodgers are excluded in all of the following analyses.

males and females with diabetes according to the age at which a first diagnosis of the condition was made. Thirty-two per cent of the males and 26 per cent of the females were under 45 years of age when the condition was first diagnosed. When several age groups are combined, 60 per cent of the males and 55 per cent of the females had a first diagnosis some time during their 45th to 64th year. The percentage of persons who had a first diagnosis when they were 65 years of age or older was 8 and 19 per cent for the males and females, respectively.

The age at first observation of persons with diabetes is shown in Table 4 and Appendix Table 2. Since a considerable number of persons were diagnosed as having diabetes prior to observation, the age at first observation tends to be greater than it is at first diagnosis. This was especially true among females.

The first signs of illness as reported by the family informant are of interest in that they reveal the symptoms which originally caused many of these diabetics to seek medical attention. Table 5 shows the nature of the first symptoms of diabetes according to the family statement. Fourteen persons reported "general weakness or tiredness" as the first sign of illness. Another fourteen persons reported their first symptom of illness to be a sore,

Table 4. Percentage distribution of males and females with diabetes classified according to the age at first observation. Eastern Health District of Baltimore.

AGE AT FIRST OBSERVATION	BOTH SEXES	MALE	FEMALE
	Per Cent		
ALL AGES	100.0	100.0	100.0
Under 35	3.5	11.1	0.0
35-39	3.5	11.1	0.0
40-44	9.2	7.4	10.0
45-49	6.9	3.7	8.4
50-54	16.1	18.5	15.0
55-59	24.1	11.1	30.0
60-64	14.9	29.7	8.3
65-69	8.0	3.7	10.0
70-74	8.0	3.7	10.0
75+	5.8	0.0	8.3

abscess, carbuncle, or an infection of the body which, unlike previous infections, healed very slowly. In ten instances the presence of diabetes was discovered when the patient went to the hospital for the treatment of some other illness. Seven persons reported severe itching of the skin as the nature of their first symptoms of illness. Of the total number of persons with diabetes who are included in this analysis, only six cases with no physical symptoms were discovered during the course of a routine medical examination.

It can be seen from Table 5 that the family statements of first signs of illness correspond very closely to the known clinical symptoms and signs of diabetes mellitus.

From an analysis of the first signs of illness, it was possible to classify persons according to an early or a late diagnosis of the condition. These data are shown in Table 6. An early diagnosis was one in which the patient had no physical symptoms of illness and diabetes was discovered during a routine medical examination. A late diagnosis was one in which dia-

Table 5. First signs of illness among eighty-seven persons with diabetes. Eastern Health District of Baltimore.

FAMILY STATEMENT OF FIRST SIGNS OF ILLNESS	NUMBER	FAMILY STATEMENT OF FIRST SIGNS OF ILLNESS	NUMBER
TOTAL	95 ¹		
General Weakness or Tiredness	14	Excessive Thirst	2
Sore, Abscess, Infection, Carbuncle, or Bruise that Would Not Heal on Some Part or Parts of Body	14	Excessive Thirst With: Burning Urination	1
Discovered When Patient Went to Hos- pital for Treatment of Some other Illness	10	Diabetic Stroke	2
Discovered on a Physical Examination	6	Feeling Ill	2
Itching of Skin (All Over Body or on Specific Parts of the Body)	7	Dizziness	1
Trouble with Feet	4	Upset Stomach	1
Pain in Some Part of Body	4	Excessive Appetite	1
Swollen Arm or Leg or Both	3	Other Symptoms	3
Loss of Weight Only	2	No Mention of First Signs of Illness (Unknown)	15
Loss of Weight With:			
Itching of Skin	2		
Nervous Spells	1		

¹ The total number of persons with diabetes was eighty-seven. There were eight instances in which patients reported first signs of illness which came under more than one category. These cases were counted in each category to which the symptoms applied. Two lodgers are excluded.

betes was discovered after the appearance of physical symptoms. These symptoms were often quite severe. They included diabetic ulcer, diabetic coma, gangrene, and slowly-healing sores and infections. As Dublin has said: "The development of gangrene, after even so slight an injury as stubbing a toe, is too often the circumstance that leads to the discovery of the disease." (3)

Only 8 per cent of the persons with diabetes had what may be considered an early diagnosis. Fourteen per cent of the cases were diagnosed in connection with other illness, that is, these cases of diabetes were discovered when the patient went to the hospital for the treatment of some other condition. The remaining 78 per cent of the cases had a late diagnosis. Either they were not diagnosed until symptoms appeared or the patient did not seek medical treatment until serious complications developed. When the eighteen new cases of diabetes which had their first diagnosis during observation are dealt with separately, it is unfortunately still true that the condition was usually not diagnosed until the appearance of symptoms or the development of complications. Eleven per cent of the new cases had an early diagnosis. Seventeen per cent were

Table 6. Percentage distribution of persons with diabetes classified according to early or late diagnosis. Eastern Health District of Baltimore.

CLASS OF DIAGNOSIS	PER CENT	NUMBER OF PERSONS ¹
TOTAL	100.0	72
Early Diagnosis ²	8.3	6
Diagnosed in Connection With Other Illness ³	13.9	10
Late Diagnosis ⁴	77.8	56

¹ Excludes fifteen persons who could not be classified and two lodgers.

² *Early Diagnosis:* This category consists of patients who had no physical symptoms, and diabetes was discovered in the course of a routine medical examination.

³ *Diagnosed in Connection with Other Illness:* These are cases of diabetes which were discovered when the patient went to the hospital for treatment of some other illness.

⁴ *Late Diagnosis:* These are cases of diabetes which were discovered after the appearance of physical symptoms. These symptoms were severe enough to cause the patient to seek medical treatment. Symptoms included: diabetic ulcer, diabetic coma, gangrene, sores that would not heal, weakness, itching, and thirst.

diagnosed in connection with other illness and 72 per cent had a late diagnosis. These findings are in accordance with the assertion that diabetes often progresses through half its course before it is clinically recognized (4).

EXPERIENCE OF DIABETICS DURING THEIR OBSERVATION

Severity of Illness. The eighty-seven persons with diabetes were considered in relation to the severity or mildness of their condition during observation. These data are presented in Table 7.

Table 7. Number of males and females with diabetes classified according to the severity of their illness during observation. Eastern Health District of Baltimore.

DEGREE OF SEVERITY OF ILLNESS	BOTH SEXES	MALE	FEMALE
TOTAL	87	27	60
Severe: ¹			
Without Gangrene	12	3	9
With Gangrene	8	3	5
Intermediate ²	25	6	19
Mild: ³			
Controlled	21	8	13
Not Carefully Controlled	11	3	8
Unknown if Controlled or Not	4	2	2
Unknown Type of Case	6	2	4

¹ *Severe:* This category is divided into two parts. The first consists of those cases of diabetes which were considered advanced in that the patients continually suffered from some combination of symptoms such as weakness, dizziness, unconsciousness, pains, severe itching and infections. While these diabetics were free from gangrene, control of the disease proved extremely difficult.

The second part consists of cases of diabetes which not only were advanced and had symptoms similar to the patients in the first category, but these cases were also complicated by the presence of gangrene.

² *Intermediate:* This category includes patients who did not suffer from the severe complications of diabetes but were rarely free from some symptom or manifestation of the condition. These diabetics frequently had traces of sugar in the urine and an excessive blood sugar level. They also complained of weakness and of feeling tired.

³ *Mild Cases Controlled:* These are cases in which the patient apparently was suffering no ill-effects from diabetes and was effectively controlling the disease by either maintaining a proper diet, taking insulin or doing both of these things.

Mild Cases, not Carefully Controlled: This category includes patients who did not make a real effort to control their disease, but nevertheless suffered little or no ill-effects from diabetes.

Mild Cases, Unknown if Controlled or Not: These are cases in which the patient apparently was suffering no ill-effects from diabetes, but due to lack of information on the illness record, it was impossible to tell whether or not the patient was doing anything to control his illness.

The persons with severe conditions were grouped into two classes. The first class consisted of those cases which were considered severe in that the patients continually suffered from some combination of symptoms such as weakness, dizziness, unconsciousness, pains, severe itching, and infections. While these diabetics were free from gangrene, control of the disease proved extremely difficult. The second class consists of cases of diabetes which not only were advanced and had symptoms similar to the patients in the first category, but these cases were also complicated by the presence of gangrene.

There was a category termed as "intermediate" which included persons who did not suffer from the severe complications of diabetes but were rarely free from some symptoms or manifestation of the condition. These diabetics frequently had traces of sugar in the urine and an excessive blood sugar level.

The last category consisted of mild cases of diabetes. This category was divided into three groups. The first group consisted of persons who were suffering no ill effects from diabetes and were effectively controlling their disease by either maintaining a proper diet, taking insulin, or doing both of these things. The second group consisted of persons with mild conditions who were not carefully controlling their disease, but nevertheless suffered little or no ill effects from diabetes. The third group was comprised of persons who reported no ill effects from diabetes, but due to lack of information on the illness record it was impossible to tell whether or not the patient was doing anything to control his illness. It should be noted that these classifications are based only upon frequency and severity of symptoms or complaints.

Twenty-four per cent of the males and 25 per cent of the females in this study were classed as persons with severe diabetes. Twenty-four per cent of the males and 34 per cent of the females were considered as intermediate cases or having moderately severe diabetes. Fifty-two per cent of the males as compared with 41 per cent of the females had diabetes in a mild form, that is, these cases showed little tendency to progress.

Method of Control of Diabetes. Table 8 shows the persons with diabetes classified according to the year in which the condition was first diagnosed and the method of controlling the disease while under observation. Forty-five persons utilized both a proper diabetic diet and insulin as a means of controlling diabetes. Thirty persons were on a diet only and five persons reported that they did not take insulin and did not adhere to any sort of regimen. In seven instances it was impossible to tell from the family records how or if the person was controlling the disease. These cases were classed as unknown.

Of the five persons in the "neither diet nor insulin" category, three had very mild diabetes; another case had a first diagnosis of diabetes shortly before death occurred; and the last case was a woman with severe diabetes who made no attempt to control her condition.

Table 8. Persons with diabetes classified according to the period in which diabetes was first diagnosed and the method of controlling the disease while under observation. Eastern Health District of Baltimore¹

PERIOD OF TIME OF DIAGNOSIS	METHOD OF CONTROL OF DIABETES
	Diet Only
TOTAL	30
Before 1930	5
1930-1937	8
1938-1943	13
Unknown Date	4
	Diet and Insulin
TOTAL	45
Before 1930	5
1930-1937	18
1938-1943	20
Unknown Date	2
	Neither Diet nor Insulin
TOTAL	5
Before 1930	0
1930-1937	1
1938-1943	3
Unknown Date	1
	Unknown
TOTAL	7
Before 1930	1
1930-1937	2
1938-1943	3
Unknown Date	1

¹ Excludes two lodgers.

Thirteen persons who were on a diet only had a first diagnosis prior to observation. Similarly, there were thirteen persons who had a diagnosis during observation and were also on a diet only. Of the persons who had a first diagnosis prior to observation, twenty-three were taking insulin and adhering to a diet as compared with twenty persons who were diagnosed during observation and were using the same method of control. It is apparent that the year of first diagnosis had little effect upon the means of controlling diabetes among these persons.

It is of interest to examine more closely the records of those persons who maintained only a diet to control their condition. The following are comments either made by the family informant or by the clinic physicians who treated these patients: "On a diet, but gaining weight all the time;" "mild diabetes easily regulated, even on the diet he keeps," "patient warned to adhere to diet;" "does not stick to diet;" "unable to keep diet;" "on diet, but sometimes breaks it;" "does not keep too close to her diet;" "gained weight, not adhering to diet, warned;" and "diets off and on." In their inability to maintain a proper diet, these diabetics show a close affinity to many nondiabetics. However, there were other persons in the "diet only" category who really adhered to a diabetic regimen and in so doing were able to control their condition effectively.

Medical Care. Table 9 presents the type of medical attend-

Table 9. Distribution of persons with diabetes according to the type of medical attendant during their observation. Eastern Health District of Baltimore.

TYPE OF ATTENDANT	PER CENT	NUMBER OF PERSONS ¹
TOTAL	100.0	87
Private Physician Only	37.9	33
Clinic Only	27.6	24
Private Physician and Clinic	8.0	7
Private Physician and Specialist	3.5	3
Clinic and Specialist	2.3	2
Hospital Only	1.2	1
None	19.5	17

¹ Excludes two lodgers.

ant utilized by diabetic persons during their period of observation in this study. Thirty-eight per cent of the persons with diabetes went only to a private physician for medical treatment. Twenty-eight per cent utilized the services of a clinic only, and 8 per cent were treated by a private physician and also attended a clinic. Approximately 20 per cent, or seventeen persons with diabetes, had no medical care during the time in which they were observed. Twelve of these seventeen persons had diabetes in a mild form and, in general, were observed for a very short period of time. In two other instances the patient died so soon after the discovery of diabetes that there was no time for observation of medical care. An additional two persons could not be classified as to the severity of their diabetes, but nevertheless were able to manage with no medical treatment during their observation. One other diabetic

Table 10. Number of males and females with diabetes, classified according to the type of medical attendant and the degree of severity of the case. Eastern Health District of Baltimore.

TYPE OF MEDICAL ATTENDANT	DEGREE OF SEVERITY OF CONDITION				
	TOTAL	Severe	Intermediate	Mild	Unknown Type of Case
MALE					
TOTAL	27	6	6	13	2
General Practitioner Only	9	0	3	5	1
Clinic Only	10	3	2	5	0
General Practitioner and Clinic	2	2	0	0	0
General Practitioner and Specialist	0	0	0	0	0
Clinic and Specialist	1	0	1	0	0
Hospital Only	1	1	0	0	0
No Medical Attendant	4	0	0	3	1
FEMALE					
TOTAL	60	14	19	23	4
General Practitioner Only	24	6	7	9	2
Clinic Only	14	3	9	2	0
General Practitioner and Clinic	5	2	1	2	0
General Practitioner and Specialist	3	2	0	1	0
Clinic and Specialist	1	0	1	0	0
Hospital Only	0	0	0	0	0
No Medical Attendant	13	1	1	9	2

took insulin and apparently did not feel the need for any additional medical care.

The persons with diabetes were then considered according to the type of medical attendant they utilized and the degree of severity of the case. These data are presented in Table 10. It can be seen that regardless of the severity of the condition, most of these patients employed the services of a general practitioner, a clinic, or both a general practitioner and a clinic. Only 15 per cent of the males had no medical care as compared with 22 per cent of the females.

The rate of medical calls among diabetic patients by the degree of severity of the condition and by type of medical attendant is shown in Table 11.³

Table 11. Rate of medical calls among diabetic patients, classified according to the type of medical attendant and the degree of severity of the condition. Eastern Health District of Baltimore.¹

DEGREE OF SEVERITY OF CONDITION	Total	TYPE OF MEDICAL ATTENDANT				
		General Practitioner	Clinic	General Practitioner and Clinic	General Practitioner and Specialist	Clinic and Specialist
		Rate Per 1,000 Person Days				
TOTAL Severe Intermediate Mild	MALE					
	30.2	8.8	14.5	4.7	—	2.2
	49.9	—	28.6	21.3	—	—
	49.5	30.4	9.2	—	—	9.9
	14.9	3.9	11.0	—	—	—
	FEMALE					
	19.9	9.6	4.8	3.1	1.8	0.6
	30.8	16.8	4.2	3.9	5.9	—
	22.7	10.1	10.1	0.8	—	1.7
	8.9	3.5	0.6	4.5	0.3	—

¹ Includes persons who were classed as permanently disabled.

³ The population which composed the denominator included a total of 193 person-years of observation of the eighty-seven diabetics. The numerator included the total medical calls reported during their observation. These data are shown in Appendix Table 3. The 193 person-years which form the denominator are expressed in person-days (Appendix Table 4).

AGE GROUP	RATE PER 1,000 PERSON-DAYS AT RISK		
	Both Sexes	Male	Female
ALL AGES	21.4	29.6	18.3
Under 45	15.6	16.3	15.1
45-64	13.2	34.5	4.6
65+	55.5	20.9	58.3

Table 12. Rate of disabling days among males and females with diabetes who were at risk of disability. Eastern Health District of Baltimore.

Males with severe diabetes had a rate of 49.9 medical calls per 1,000 person-days for all types of medical attendants. Corresponding rates for males with intermediate and mild conditions were 49.5 and 14.9, respectively. The females present a different picture; the rate of medical calls decreased with a decrease in the severity of the condition. The total rate among females with severe diabetes was 30.8 per 1,000 person-days. Intermediate conditions had a rate of 22.7 medical calls per 1,000 person-days, and mild cases a rate of 8.9.

During the period of observation there were nine persons who were hospitalized due to the development of serious complications of diabetes. These 9 persons had a total of thirteen hospital admissions, or an average annual rate of 67.4 admissions per 1,000 person-years at risk. There was a total of 361 hospital days for the thirteen admissions which yielded a mean of 30.1 hospital days per hospitalized case.

Disability. Table 12 presents the rate of disabling days among males and females with diabetes. All persons who were permanently disabled throughout their observation and therefore not at risk of disabling episodes of illness are excluded from this particular analysis.⁴

The total person-days at risk of disability was 16,899 for males and 45,031 for females, as shown in Appendix Table 4. The rate per 1,000 person-days at risk for males at all ages was

⁴ Nine of the eighty-seven diabetics were permanently disabled throughout observation and one additional case became permanently disabled during observation.

29.6. The corresponding rate for females was 18.3 disabling days. This means that, on the average, males were disabled 3 per cent and females 1.8 per cent of the time they were observed. The ratio of the rate among males to that among females indicates that the rate of disabling days was 62 per cent higher among males than that among females.

These data do not reveal the total days which may be classed as "nonproductive" days due to diabetes because the persons who were permanently disabled have been excluded. If these persons be included, 15.8 per cent of the observed days among male diabetics were disabled days. The corresponding per cent for females was 13.5. It is apparent that efforts should be made toward the prevention of permanent disability from diabetes because such disability represents a great loss to the patient and to the community.

A previous study has shown that when disabling episodes are related to the particular population at special risk of such episodes, that is, the cases themselves, males had a greater risk of disability than did females for certain chronic conditions, namely, arthritis, heart disease, hypertensive vascular disease and arteriosclerosis, varicose veins, diabetes, psychosis, and malignant neoplasm. Males also suffered considerably more disability in terms of days disabled than did females. One of the most outstanding classes of chronic illness in this respect was again diabetes mellitus (5).

When days of disability were related to the degree of severity of the condition, the rate of disabling days was higher for males than for females regardless of whether the condition was severe, intermediate, or mild. For both males and females there was a decrease in the rate of days disabled as the severity of the condition decreased.

SUMMARY

The data presented in this study afford a description of the persons in a sample population of the Eastern Health District of Baltimore who had diabetes mellitus.

The position of the diabetic in the household, the year of first diagnosis of the condition, and the age at first diagnosis are discussed, as is the age at first observation of persons with diabetes.

The family statement concerning the nature of the first signs of illness was shown to be in accordance with the known clinical symptoms of diabetes mellitus. An analysis based on the first signs of illness was presented which sought to determine whether or not these diabetics had an early or a late diagnosis of their illness. It was found that only 8 per cent had an early diagnosis as compared with 78 per cent which had a late diagnosis.

The eighty-seven persons with diabetes were considered according to the severity or mildness of their chronic illness during observation. Approximately 25 per cent of the cases among both males and females were severe. Fifty-two per cent of the males had diabetes in a mild form, the corresponding figure for females being 41 per cent.

The method of controlling the condition while under observation was discussed. It was apparent that many of the persons who were attempting to maintain internal equilibrium by means of a diet only, experienced extreme difficulty in adhering to a diabetic regimen.

Regardless of the severity of the condition, persons who had medical attention during the study utilized, for the most part, the services of a general practitioner, a clinic, or both a general practitioner and a clinic.

When the rate of medical calls was considered, males with severe diabetes had a rate of 49.9 medical calls per 1,000 person-days of observation compared with a rate of 30.8 for females. The rate of medical calls for mild conditions was 14.9 and 8.9 for males and females, respectively.

The days of disability were also related to the degree of severity of the condition. The rate of disabling days per 1,000 person-days at risk was higher for males than for females regardless of the severity of the case. For both sexes there was

a decrease in the rate of disabling days with a decrease in the severity of the condition.

ACKNOWLEDGMENTS

The study of illness in a sample population of the Eastern Health District of Baltimore was conducted by the United States Public Health Service and the Milbank Memorial Fund.

Acknowledgments are made to the Departments of Biostatistics and Epidemiology of the Johns Hopkins School of Hygiene and Public Health and to the Baltimore City Health Department for generous assistance and cooperation which greatly facilitated the carrying on of the study of illness in the Eastern Health District of Baltimore.

Acknowledgments are also made to Dr. Selwyn D. Collins and to Miss F. Ruth Phillips who participated in all phases of the Baltimore Morbidity Study.

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Appendix Table 1. Number of males and females with diabetes according to the age at which the first diagnosis of the condition was made. Eastern Health District of Baltimore.

AGE AT FIRST DIAGNOSIS	BOTH SEXES	MALE	FEMALE
ALL AGES	87 ¹	27	60
Under 35	4	4	0
35-39	9	3	6
40-44	9	1	8
45-49	5	1	4
50-54	16	6	10
55-59	13	5	8
60-64	11	3	8
65-69	4	1	3
70-74	6	1	5
75+	2	0	2
Unknown Age	8	2	6

¹ Includes one child age 4 and excludes two lodgers.

Appendix Table 2. Number of males and females with diabetes classified according to the age at first observation. Eastern Health District of Baltimore.

AGE AT FIRST OBSERVATION	BOTH SEXES	MALE	FEMALE
ALL AGES	87 ¹	27	60
Under 35	3	3	0
35-39	3	3	0
40-44	8	2	6
45-49	6	1	5
50-54	14	5	9
55-59	21	3	18
60-64	13	8	5
65-69	7	1	6
70-74	7	1	6
75+	5	0	5

¹ Includes one child, age 8. Excludes two lodgers.

Appendix Table 3. Number of medical calls among diabetic patients classified according to the type of medical attendant and the degree of severity of the condition. Eastern Health District of Baltimore.

DEGREE OF SEVERITY OF CONDITION	TOTAL	TYPE OF MEDICAL ATTENDANT				
		General Practitioner	Clinic	General Practitioner and Clinic	General Practitioner and Specialist	Clinic and Specialist
TOTAL Severe Intermediate Mild Unknown Type of Case ¹	MALE					
	543	158	261	85	—	39
	199	—	114	85	—	—
	194	119	36	—	—	39
	150	39	111	—	—	—
	—	—	—	—	—	—
	FEMALE					
	985	476	241	152	88	28
	436	238	60	55	83	—
	380	170	169	13	—	28
166	65	12	84	5	—	
Unknown Type of Case	3	3	—	—	—	—

¹ Unknown number of calls to a general practitioner.

Appendix Table 4. Disabling days and person days at risk of disability among males and females with diabetes, classified by age. Eastern Health District of Baltimore.

AGE GROUP	NUMBER OF DISABLING DAYS			NUMBER OF PERSON-DAYS AT RISK		
	Both Sexes	Male	Female	Both Sexes	Male	Female
ALL AGES	1,323	501	822	61,930	16,899	45,031
Under 45 ¹	133	63	70	8,507	3,866	4,641
45-64 ²	556	420	136	42,002	12,171	29,831
65+ ³	634	18	616	11,421	862	10,559

¹ Excludes one male who was permanently disabled throughout observation and another male whose permanent disability took place during observation.

² Excludes two males and four females who were permanently disabled throughout observation.

³ Excludes two females who were permanently disabled throughout observation.

THE CHANGING FOCUS OF DIFFERENTIAL FERTILITY RESEARCH: THE SOCIAL MOBILITY HYPOTHESIS¹

CHARLES F. WESTOFF

INTENSIVE research in the field of differential fertility according to socio-economic levels began, in the United States, in the late 1920's and early 1930's. Despite the fact that fertility and various types of socio-economic data were available from earlier censuses, it was not until nearly 1930 that data from the 1910 census were first exploited (1). Since that time a rash of studies has appeared, many of these concentrated in the early '30's, which have employed various approaches to the subject of differential fertility. The development of these studies has proceeded along three different but related lines.

The first of these may be called the descriptive empirical studies. The main purpose of these was to establish the nature of the relationships and to confirm their stability. (2) From these analyses the inverse relation of fertility to social class became the familiar expectation to students of the subject. The purpose of the frequent repetition of these descriptive studies, apart from the application of more refined techniques of measurement, has been to measure time trends in the differentials, the central question being whether class differences in fertility were contracting or becoming greater. From this "second wave" of statistical studies, (3) it became evident that the usual inverse relationship had been superseded by a type of relationship which assumed the form of an oblique "J" curve, with the inverse relationship of marital fertility only continuing up through the business class, the high school graduate group, or the upper-middle income or rental groups, while the topmost groups manifested either similar or higher fertility rates. These exceptions to the inverse association have been interpreted as

¹ From the Milbank Memorial Fund. This paper was prepared while the author was at the University of Pennsylvania and was presented, in substantially the same form, at the annual meeting of the Population Association of America held in Princeton, April 19-20, 1952.

evidence of a general contraction of class differences in fertility. This interpretation was given substance by the theory of the differential rate of diffusion of birth control information and practice which presumably began in the upper classes and only gradually seeped down to the middle and lower classes. A recently published study by Kiser, using the fertility ratio data of the 1947 and 1949 Current Population Surveys, indicated still further contractions since 1940 which are the result of differential *increases* in fertility as opposed to the earlier contractions due to differential *declines* in fertility. (4)

These descriptive studies have been indispensable in defining the subject but, nevertheless, are only preliminary to the equally important task of ascertaining the causal complexes involved. The use of birth control techniques is *per se* an unimpeachable *immediate* cause of differential fertility and family limitation in general, but is in turn a cultural product. The mere possession of its knowledge is no guarantee of its utilization. The social scientist, therefore, is obligated to go further and to ascertain within which subcultural or class environments and under what social circumstances this knowledge is applied. In other words, what are the differences in subcultural value-systems which encourage or discourage the use of birth control devices and which influence motivations governing the size of the planned family?

Most of the theories which were advanced to explain the relationships discovered in these early studies were largely of the so-called "ex post facto" variety and at best, under the circumstances and in the absence of supporting deductive research, can be considered as only more or less plausible inferences. In other words, although many insightful sociological hypotheses have been stimulated and derived from these descriptive studies, the data were collected and analyzed without substantive, analytical hypotheses in advance.

The second line of interest in differential fertility may be classified as the "evaluative" approach. Eugenicists, demographers, biologists, and sociologists alike contributed many

articles to various journals in which differential fertility was usually deplored and feared. (5) Gloomy predictions for the genetic future were forecast. Extrapolating the class differences in fertility, they predicted that in some few hundred years the so-called "best" elements in American society would die out because of under-reproduction. In assessing these qualitative implications, the only redeeming feature seen by some observers was contained in the theory that differential fertility facilitated vertical mobility and thus contributed to the maintenance of an open-class system and democratic values in general. (6) In some instances, at least, this was considered as only slight consolation since the process of vertical mobility itself was believed to lead to a waste of society's "best" biological stock. On the whole, it was a rather pessimistic picture of the future.

The third area of interest in the differential fertility of socioeconomic groups—research into its causes—represents the most recent development. (7) The Indianapolis Study, a study of the social and psychological factors affecting fertility and a landmark in this research field, is the first major study to test empirically substantive hypotheses which raise the question "why." The Study Committee in 1939 selected and formulated twenty-three hypotheses involving the relation of many sociological variables to fertility planning and fertility. The completed analyses of seventeen of these have already been published;² the remaining ones are in the final stages of preparation. Up to date, one of the major results of the Indianapolis Study has been to highlight the analytical importance of socio-economic status. This importance is manifested, with only few exceptions, in the fact that given relationships between specific variables, for example, general planning, feeling of economic security, feeling of personal adequacy, religious interest, and others, and fertility planning and planned fertility are either considerably weakened or disappear completely when socio-

² The first report of the Indianapolis Study appeared in July, 1943 in *The Milbank Memorial Fund Quarterly*. Following reports have appeared irregularly in this journal and will continue to be published there until the Study is completed.

economic status is held constant. For example, Freedman and Whelpton report that:

To a large extent—but not entirely—the relationship between general planning and fertility planning is a function of the socio-economic status of the couple. (8)

Kiser and Whelpton in their report on economic security conclude that:

Among the couples studied, success in fertility planning is directly associated with economic security but this relation virtually disappears when socio-economic status is held constant. (9)

In this particular instance, however, the direct relation of economic security to the *fertility* of planned families does persist to some extent with socio-economic status controlled. Freedman and Whelpton, in another analysis, indicate that:

A slight negative relationship exists between the effective practice of contraception and degree of religious interest as determined in this study. However, this relationship is mainly a function of socio-economic status. It is not maintained with any consistency within categories based on the Index of Socio-Economic Status. (10)

and

A large part, if not all, of the relationship between (religious) denomination and effective planning is a function of the distinctive socio-economic status of the different denominations. (11).

In a recent article in this series relating to feeling of personal adequacy, the authors state:

The data indicate that when socio-economic status is held constant, much of the original association of fertility planning with personal adequacy disappears, although the positive direction of the relationship is, for the most part, still maintained. (12)

and

No systematic relation of fertility to the index of personal adequacy of either the wife or the husband is found when the factor of socio-economic status is held constant. (13)

This is only a partial list. Other factors, such as Traditionalism also experienced a considerable, if not entire, loss of association with fertility planning and/or fertility when socio-economic status was controlled. (14) In most of these side-analyses where socio-economic status was held constant, statistical treatment necessitated retaining only three class levels instead of the original five. In view of the resultant loss of homogeneity in these groups, it is even more surprising that socio-economic status exerted as strong an influence as it did.

The Index of Socio-Economic Status employed throughout this Study represented the summation of scores assigned to couples on the basis of eight factors: average annual earnings of the husband since marriage, shelter rent at the time of interview, net worth, husband's longest occupation since marriage, purchase price of car, education of husband, education of wife, and rating on Chapin's living room scale. (15) In essence, these factors can be reduced to three basic phenomena: financial position, occupation, and education. Ideally, in view of the evident importance of this Index as revealed in the quotations above, it would be very desirable to perform the same type of factor analysis using these three major components as controls rather than the summary index by itself. This might possibly establish some indication of the relative importance of one or the other component in "outweighing" the previously observed strong relationships between economic security, general planning, personal adequacy, etc., and fertility planning and size of family. Although it is of course true that all of these sociological and psychological variables are themselves related to socio-economic status, the relationships are by no means so high as to preclude automatically independent influences on fertility and fertility planning.

The fact that these relationships are considerably reduced when socio-economic status is held constant at least leaves open the definite possibility that social mobility may be the dynamic variable that empirical research has for so long ignored. One hypothesis (the analysis of which has not yet been published)

which was formulated in the Indianapolis Study—relating to the difference between actual level of living and standard of living desired³—represents a pioneer attempt to explore a part of the subjective aspect of social mobility in its relation to fertility planning and fertility. Unfortunately, the basic interview questions designed to test this hypothesis which asked the couples, for example, the amount of income they would need to live satisfactorily, the kind of car they would like to own, the amount of rent they would have to pay for a house in which they would like to live, and so forth, were of a nature that encouraged, among low-income groups, wide relative differences between actual and desired standards of living and did not distinguish couples who were actively oriented toward closing these gaps from couples to whom these expressed desires were only idealistic aspirations never seriously entertained.

Two other analyses of the Indianapolis Study data⁴, currently in process, are attempting to relate data on occupational, income, and educational mobility to fertility planning and size of family. Unfortunately, only tentative and completely unreliable inferences can be drawn about the aspirational dimension of mobility from these data. Riemer's preliminary findings indicate that upward occupational mobility is associated with greater relative success in fertility planning but her analysis of the fertility of planned families suggests that a higher rate of deliberate childlessness, rather than a lower average number

³ The stated hypothesis is: "The greater the difference between the actual level of living and standard of living desired, the higher the proportion of couples practicing contraception effectively and the smaller the planned families."

⁴ Ruth Riemer is currently analyzing the hypothesis: "The stronger the feeling that children interfere with personal freedom, the higher the proportion of couples practicing contraception effectively and the smaller the planned families." John Kantner is also analyzing two hypotheses of relevance to social mobility: "Family and childhood situations and attitudes" and "conformity to group patterns" both of which are presumed to affect the proportion of couples practicing contraception effectively and the size of the planned families. All of these reports will be published in future issues of *The Milbank Memorial Fund Quarterly*. Kantor is also analyzing data from the Indianapolis Study on the subject of *intergenerational* mobility, the results of which have not yet been made available. Riemer's study of mobility, on the other hand, is confined to *intragenerational* mobility. The preliminary results of Riemer's analysis were presented in a paper read at the 1952 annual meeting of the Pacific Sociological Society.

of children, is associated with upward mobility. This latter relationship is by no means, according to Riemer, conclusively demonstrated.

It is impossible, within the limits of this paper, to discuss in any detail the various social and psychological implications of social mobility. (16) Very briefly, however, the ideal-type of the couple either in the actual process of vertical mobility or effectively geared toward its anticipation probably has the following characteristics: a maintained rationality of behavior; intense competitive effort; careerism with its accompanying manipulation of personalities; psychological insecurity of status with its attendant anxieties; and an increasing exhaustion of nervous and physical energies; in short, a pervasive success-orientation and all that is implied by it. In reality, of course, not all of these elements will be found necessarily to be either operating together or of equal intensity.

It would seem very probable that social mobility is present in varying degrees in and between all strata of American society, although sociologists have maintained that mobility and its accompanying personality structure are most characteristic of the middle class. As a matter of fact, one sociologist has defined the middle class as "that class whose members have welded their attitudes and values into a life-long striving toward an improvement of personal socio-economic position within the class-structure." (17) Although this emphasis on the so-called middle class is probably quite justified, it by no means obviates the necessity for studying the mobility patterns in the other classes.

All of these characteristics of social mobility would appear to have definite implications for fertility planning and size of family. Arsene Dumont, for example, recognized this relationship some 60 years ago in his theory of social capillarity which claimed that "just as a column of liquid has to be thin in order to rise under the force of capillarity, so a family must be small in order to rise in the social scale." (18) The theoretical relationship is clear enough; what is suggested here is the need for

quantitative research into the extent of the precise empirical relationship of these variables.

On the assumption then, that having children is considered inimical to social and economic ambitions, the following hypothesis emerges: social mobility, both in its subjective and objective dimensions, is directly related to fertility planning and inversely related to the size of the planned family—both relationships persisting within otherwise homogeneous socio-economic groups. Furthermore, it is quite possible that the direct relationships manifested between socio-economic status and feeling of economic security, feeling of personal adequacy, general planning, and the like, would not retain their original intensity if social mobility were introduced as the test factor. In other words, it is just as plausible to hypothesize that these social-psychological variables in addition to fertility planning and planned fertility, are as much dependent upon the presence or absence and type of social mobility as they are on the more static phenomena of a given occupation, financial status, and educational level. At the very least, it would seem necessary to take into account the *process* of achieving a certain status as well as the end result.

The theoretical extension of these assumptions for *differential* fertility would be that social class differences in fertility planning and differential fertility itself are related to the differential frequency of socio-economic ambitions and social mobility within and between class levels—the middle classes exhibiting the clearest manifestation of this type of “atmosphere” and having the lowest fertility.

One of the most difficult methodological obstacles to designing a study to test these hypotheses is the problem of quantifying and measuring social mobility. In its most simple outline, there is a three-point continuum: upward mobility, immobility or stability, and downward mobility. In addition to direction, there is the question of intensity or degree of movement. Many of the existing statistical studies of mobility (they are mostly studies of occupational mobility) have measured movement be-

tween occupational categories as defined by the Bureau of Census classifications. This certainly leaves much to be desired since it leaves untouched what probably amounts to the most frequent type of mobility, namely, movement within the same broad occupational class from one position to another.

Advancement from the proprietorship of a newsstand to the presidency of a bank, for example (although undoubtedly not too frequent an occurrence), would not be perceived if the "Managers, Officials, and Proprietors" classification were the smallest breakdown, as it so frequently is in these studies. Countless other illustrations could be offered of many routine occupational movements which are necessarily overlooked in the use of these broad classifications. These census groupings were clearly *not* designed as indices of personal occupational mobility and their use for this purpose, particularly at the level of individual mobility, is quite meaningless. Another pattern of these studies has been to consider mobility in terms of the comparison of father's and son's occupations, which has definite limitations from the point of view of fertility studies. It would also seem that an ideal study of the relation of mobility to family limitation should include the more strictly economic as well as occupational mobility and the changes in position that might connote prestige as well as actual occupational changes within a given career line. Some of these factors might possibly be reconstructed in terms of their influence on motivations governing size of family or could certainly very profitably be included in future studies of couples in their reproductive age periods.

An extremely important dimension of the sociology of vertical mobility is the so-called subjective aspect, that is, the effect upon individual motivation of the anticipation of socio-economic advancement. With respect to factors influencing decisions on size of family this aspect of mobility is probably the most important. This so-called subjective aspect of mobility cannot be deduced in its entirety from *actual* mobility since there is the type that aspires but is not mobile and, conversely,

within the general type that is upwardly mobile, the amount and intensity of ambition and effort required is a relative and non-inferable variable. Also, individuals who feel that their existing status is of uncertain tenure and who react in an "economizing" fashion to the fear of loss of status must also be included in this subjective concept of mobility. It is suggested here that aspirations for advancement and increasing success are important factors in the making of decisions regarding the size of family planned as well as the extent and effectiveness of contraceptive practice, while, conversely, the actual degree of subsequent mobility is at least partially due to the conditions resulting from these decisions. In addition to all of these facets of the subject, there is another, this emphasized by Dumont, namely, that small families may be motivated by the desire of parents to provide better opportunities for the advancement of their children rather than by their own mobility ambitions.

There are two recent empirical studies of European populations which have yielded some information about the relationship of social mobility to size of family. One of these studies, by Marcel Bresard and Alain Girard, (19) is based on data collected from a national sample of about 3,000 males in France. The research concentrated primarily on job changes and comparisons of grandfathers', fathers', and sons' occupations and educational levels, in other words, the objective rather than the subjective aspects of mobility. The data collected on size of family were restricted to information about only the actual number of children in the different families that is, no information was obtained on the extent of fertility planning or anything to do with birth control practices. It would not have been feasible in this particular study to obtain such information. Ideally, however, we are more interested in the extent to which social mobility operates in affecting the size of the *planned* family as well as fertility and fertility planning *per se*. Nevertheless, the statistical analysis did reveal that the proportion of small families was highest in instances of upward mobility,

lowest in downward mobility, and generally intermediate in stable families. In summarizing this part of the study, Bresard concludes that ". . . it is in the group of small families that we note the largest proportion of persons who have risen socially." (20)

The other major study, by Jerzy Berent (21) based on close to 2,000 marriages taken from a nation-wide sample of 10,000 cases which were collected by the Social Survey in England and Wales in 1949, also analyzed the relationship between fertility and both intergenerational and personal social mobility. Similar to the studies of the French population, Berent's analysis did not include either data on socio-economic ambitions or contraceptive practice. The findings of this study are in general agreement with other studies of the subject. When the family size of persons in the same class of origin is considered, those who have moved "up" have the smallest families, on the average, and those who have moved "down" have the largest families, with static families having an average size intermediate between the two. On the other hand, when persons of the same present social status are compared, the pattern is reversed. Berent resolves this apparent contradiction by the theoretical isolation of two phenomena: "the acquisition of the fertility characteristics of the class into which the sons have moved and the maintenance by them of the family building habits of the class in which they were born." (22) The author's analysis of personal mobility, that is, change in occupational status since marriage (all marriages in this study were of at least twenty years duration) reveals, with some irregularities, the expected pattern of upward mobility associated with low fertility and downward mobility characterized by high fertility.

A recent study (23) by E. Digby Baltzell of the size of families listed in *WHO'S WHO IN AMERICA* and in the *SOCIAL REGISTER* also suggests, rather than conclusively demonstrates, a confirmation of the mobility hypothesis. His analysis of a relatively homogenous social class in Philadelphia indicates consistently that those parents who have *achieved* their class

position have smaller families, on the average, than those whose class positions were ascribed.

The most neglected area of study in this field has been research into the relation of fertility and fertility planning to mobility aspirations or socio-economic ambitions which, as has been suggested, would appear to be potentially a very rewarding line of investigation. Although the various methodological problems which would be encountered in such a study are very complex, an increasing amount of psychological research on levels of aspiration is being undertaken which demographers may be able to incorporate in future fertility research. Certainly both the theoretical significance of mobility aspirations and the extremely sketchy empirical studies of actual mobility would seem to dictate the desirability of future research oriented in this direction.

In summary, the changing focus of the study of class differences in fertility is from descriptive to causal research. The latter type of research has repeatedly indicated the greater relative importance of socio-economic status over a number of discrete sociological variables in relation to fertility planning and planned fertility. It is proposed here that both aspirations for upward mobility and social mobility itself may be the crucial variables as yet not explored to any extent in empirical research.

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RELATIONSHIP BETWEEN FAMILY SIZES OF TWO SUCCESSIVE GENERATIONS¹

JERZY BERENT

THE object of the present article is to show, on the basis of sample material described below, that the size of the family from which the parents come holds an important place among the biological and social factors influencing the number of children born to them. This problem, which may be described as the study of the relationship between the fertility of successive generations, has received comparatively little attention from students of differential fertility. Raymond Pearl (1) records that "a number of *ad hoc* attempts have been made to measure biometrically the degree of inheritance of human fertility, by the technique of correlating size of completed families in parental and filial generations." Among these attempts the study of Karl Pearson and his associates (2) published in 1899 can still be regarded as a classic on the subject and references to it will be made in the subsequent discussion.

More recently Marcel Bresard (3) found the existence of positive association between family sizes of two generations within several socio-economic groups, and came to the following conclusions: "Les reinseignements sur la dimension des familles sur deux générations ont fourni des indications très intéressantes sur un phénomène important: le caractère traditionnel de la fécondité différentielle dans les lignées." "Les personnes appartenant à des familles nombreuses descendent plus fréquemment de parents appartenant eux-mêmes à des familles nombreuses et inversement, les influences tant paternelles que maternelles se manifestant avec une intensité très voisine, phénomène manifeste dans *tous* les groupes professionnels."

¹ The research embodied in this paper was carried under the auspices of the Population Investigation Committee, London, England and represents part of the research project of that Committee.

While Pearson ascribed the relationship to hereditary causes, Bresard seeks the explanation in the tradition of family pattern, implying *the desire* on the part of the second generation to build up a family similar in size to that from which at least one of the parents came. This difference in outlook undoubtedly reflects the progress, during the last half century, in the extent and effectiveness of family planning, associated with the use of contraceptives and other forms of birth control. The latter factor played a comparatively minor part with regard to the generations which were the subject of Pearson's study; on the other hand, Bresard seems to have ignored the hereditary factor by assuming tacitly that families are as large as the parents want them to be.

The separation of the biological and the sociological influence is by no means an easy matter. Subject to certain reservations, the inheritance of fecundity could be studied by relating the number of live births occurring in marriages of completed fertility to the number of brethren on the husband's and/or wife's side, provided that no means of birth control were practiced among the generations involved and that the condition of the completeness of marriage applied also to the first generation. The selection of a sample of, say, mothers and daughters, which would satisfy these conditions is theoretically possible, but the procedure might introduce a distorting bias on account of the correlation between fertility and survivalship. In addition, the information on the practice of birth control as well as on the number of live births provided by mothers whose average age would be about 70, would hardly be reliable.

The hypothesis that there is a certain family tradition with respect to family size presupposes both the desire and the ability on the part of the parents to produce a definite number of children. Logically, the testing of this hypothesis should therefore be confined to those marriages of completed fertility which had successfully planned the size of their families.

It will be seen that the nature of the material on which the present study is based, does not entirely fulfill the requirements

set out above. Its advantage in comparison with the few other studies executed hitherto lies in the opportunity it offers to carry out a separate analysis of marriages in which some kind of birth control was practiced and of those in which it was not. Some use will also be made of the information on the number of children planned at marriage.

THE MATERIAL

At the request of the Royal Commission on Population, an Inquiry into Family Limitation was undertaken in 1946 by the Royal College of Obstetricians and Gynaecologists. The main object of this investigation, the report on which was published as the first volume of the Papers of the Royal Commission on Population (4), was to ascertain the extent and effectiveness of birth control methods in the married population of Great Britain. For this purpose a sample consisting of married female patients was interviewed by members of the medical profession in a number of hospitals. Owing to the intimate nature of the questions asked, it was thought expedient to secure the doctor-patient relationship even at the expense of sacrificing the principle of random selection².

The present analysis has been made possible thanks to the inclusion in the schedule of the question on number of brethren, including deceased, on the husband's and wife's side, thus providing, subject to certain qualifications³, a picture of the fertility of the first generation. It is important to bear in mind that we have no information on the duration of marriage nor the prevalence of birth control among our subjects' parents, and here our data fall short of the desiderata outlined in the introductory paragraphs. It is also worth pointing out that since the questions were answered by the wives, the records of the number of their brethren can be expected to be more reliable than those of the number of their husbands' brethren.

² This principle was ensured only with regard to the selection of patients *within* a given hospital.

³ Apart from the inter-correlation between fertility and the chance of survival which was mentioned before, the incidence of complete sterility is entirely disregarded.

In order to make the group more homogeneous, only marriages of at least fifteen years duration in which both spouses were only once married were included in the analysis. The sub-sample selected to meet these requirements consists of 1,482 families.⁴

PARENT-OFFSPRING RELATIONSHIP WITH REGARD TO FAMILY SIZE

When testing the hypothesis that family size runs through generations one comes at once to the difficulty of separating the effect of the size of the family of the husband from that of the wife. These two are not always similar and very rarely identical. It seems that Pearson dodged this issue when he related the number of children born to fathers to the number of children born to sons and, similarly, the fertility of mothers to that of the daughters, since clearly each son had also a mother and each daughter a father, whose family size was not irrelevant. It is conceivable that fecundity is inheritable through one sex only, but no evidence exists to support this theory. Similarly, it is impossible to state *a priori* which of the partners to a marriage which plans successfully its number of children has more say in the matter of deciding what that number is to be.

In Table 1, average family sizes (i.e. average number of live births) of marriages of at least fifteen years' duration are shown according to the size of the family from which each of the spouses comes.

A small family is defined here and in the following tables as one in which there were one or two children (including the subject), medium-sized as one consisting of three to five children, large as one of six to ten children and very large as one in which there were more than ten children. The table shows a number of interesting features. To begin with it will be noticed that

⁴ The original sample was divided into two large groups according to whether the women interviewed found themselves in hospital in connection with pregnancy or not. Dr. Lewis-Fanning confined his analysis to the latter ("Non-Maternity") groups and his practice was followed here.

the averages in the marginal row, that is irrespective of husband's family size, increase consistently from 2.63 where the wife's family size is small, to 4.41 where it is very large. Similarly, inspection of the last column reveals that the averages also increase when the association between the family size of the husband and the number of his children is studied irrespective of the number of his wife's brethren. But in the latter case the variation covers a much smaller range: from 2.98 to 3.89. That is to say the wife's family size seems to exert a stronger differentiating effect. The main body of the table shows, with a few insignificant exceptions, a definite pattern, which makes it clear that the relationship holds for each variable when the other is held constant. There is no doubt that the fertility of the second generation depends to some extent on that of the first. In the search for the cause of this phenomenon we can

Table 1.¹ Average number of live births according to husband's and wife's family size. All marriages of at least fifteen years duration.

HUSBAND'S FAMILY SIZE	WIFE'S FAMILY SIZE				ALL
	Small	Medium	Large	Very Large	
Small	2.05 (20)	3.06 (66)	3.07 (58)	3.53 (15)	2.98 (159)
Medium	2.38 (66)	2.85 (176)	3.55 (174)	4.08 (49)	3.17 (465)
Large	2.72 (72)	3.42 (183)	3.58 (280)	4.77 (90)	3.60 (625)
Very Large	4.14 (14)	3.17 (54)	4.01 (82)	4.37 (52)	3.89 (202)
ALL	2.63 (172)	3.13 (479)	3.58 (594)	4.41 (206)	3.44 (1451)

Omissions:

Number of husband's brethren	26
Number of wife's brethren	2
Use of birth control	3

All	31
Included	1,451

Grand Total 1,482

¹ In this and in the following tables the figures in parentheses indicate the number of marriages on which the average is based.

HUSBAND'S FAMILY SIZE	WIFE'S FAMILY SIZE				ALL
	Small	Medium	Large	Very Large	
Small	2.10 (10)	3.27 (30)	3.96 (24)	3.89 (9)	3.41 (73)
Medium	2.81 (27)	3.23 (73)	3.86 (80)	4.52 (29)	3.60 (209)
Large	3.08 a (36)	3.93 (81)	3.90 (128)	5.13 (53)	4.03 (298)
Very Large	4.89 (9)	3.84 (19)	4.46 (46)	4.70 (30)	4.45 (104)
ALL	3.07 (82)	3.57 (203)	3.99 (278)	4.79 (121)	3.89 (684)

Table 2. Average number of live births according to husband's and wife's family size. Non-controllers only.

divide our marriages into two groups: birth-controllers and non-controllers. The first group, which includes those couples who, according to the statement of the wife at interview, have at any time during their reproductive history used some method of birth control⁵ constitutes 53 per cent of the whole sub-sample.⁶

Examination of Table 2 (non-controllers) and Table 3 (birth controllers) shows that the pattern displayed in Table 1 repeats itself in each group. In particular, among non-controllers the average number of children increases the larger the family size of the husband from 3.41 to 4.45 and from 3.07 to 4.79 in the case of wives. Among the controllers the corresponding range is 2.62 to 3.29 for husbands and 2.22 to 3.88 for wives. Again, in both cases the effect of the wife's family size seems to be stronger. We can state then, that both the "biological" and the "sociological" factors seem to be present with respect to both parents. This conclusion, based on the analysis of aver-

⁵ The following definition of birth control was adopted: "Contraception (birth control) is the use by either sex of any means whatsoever whereby coitus may be experienced, while at the same time the fusion of the ovum with the spermatozoon may be averted so that conception does not take place." It will be seen to include all chemical and mechanical methods, coitus interruptus and the use of "safe period." Abstinence of periods of more than six months was also treated as birth control.

⁶ There are grounds to believe that this proportion has been understated, that is to say that some of the couples recorded as Non-controllers did in fact use some methods of birth control, but it is impossible to state the magnitude of this error.

HUSBAND'S FAMILY SIZE	WIFE'S FAMILY SIZE				ALL
	Small	Medium	Large	Very Large	
Small	2.00 (10)	2.89 (36)	2.44 (34)	3.00 (6)	2.62 (86)
Medium	2.08 (39)	2.57 (103)	3.28 (94)	3.45 (20)	2.82 (256)
Large	2.36 (36)	3.02 (102)	3.31 (152)	4.24 (37)	3.22 (327)
Very Large	2.80 (5)	2.80 (35)	3.44 (36)	3.91 (22)	3.29 (98)
ALL	2.22 (90)	2.81 (276)	3.22 (316)	3.88 (85)	3.03 (767)

Table 3. Average number of live births according to husband's and wife's family size. Birth-controllers only.

ages, will be confirmed later by regression analysis. Before its results are shown, however, let us introduce another variable, that of social class, defined according to the occupation of the husband at the time of the interview⁷. The subjects were classified in the original sample according to the Registrar General's five grade scale, out of which three groups were formed: Non-manuals, Skilled Manuals and Semi or Unskilled Manuals. The fertility of completed marriages according to the social class and family size of the husband is shown in Table 4, and according to the family size of the wife in Table 5. The effect of the class differentials can be seen within each family size, since the averages increase for lower classes. What is more important here, however, is that within each class the averages increase with the increase in the size of the family from which the husband (Table 4) or the wife (Table 5) comes.⁸

Until now the technique used in the analysis has been that of showing the average number of children born to the second generation according to four broadly and arbitrarily defined

⁷ In a small number of cases where the husband was recorded as "Not gainfully occupied" at the time of the interview, his occupation in 1939 was considered when available.

⁸ Our sample size is too small to allow the breakdown by social class according to both the husband's and wife's family size.

HUSBAND'S FAMILY SIZE	SOCIAL CLASS			ALL
	Non-manuals	Skilled Manuals	Semi or Unskilled Manuals	
Small	2.31 (42)	2.99 (72)	3.58 (38)	2.95 (152)
Medium	2.45 (100)	3.00 (206)	3.84 (132)	3.13 (438)
Large	2.81 (89)	3.34 (287)	4.27 (211)	3.59 (587)
Very Large	2.57 (30)	3.44 (93)	4.68 (65)	3.73 (188)
ALL	2.56 (261)	3.21 (658)	4.15 (446)	3.39 (1365)

Table 4. Average number of live births according to husband's family size and social class. All marriages.

size-groups of the first generation. The run of the averages indicated in each case the existence of positive correlation between our two main variables. In Table 6 the product-moment correlation coefficients can be compared between Birth-controllers, Non-controllers and three social classes. It will be seen that all but one of the coefficients show a significant positive correlation between the sizes of our two generations.* In each

Table 5. Average number of live births according to wife's family size and social class. All marriages.

WIFE'S FAMILY SIZE	SOCIAL CLASS			ALL
	Non-Manuals	Skilled Manuals	Semi or Unskilled Manuals	
Small	1.95 (37)	2.35 (77)	3.18 (45)	2.49 (159)
Medium	2.38 (104)	2.89 (205)	3.90 (144)	3.09 (453)
Large	2.73 (95)	3.28 (290)	4.26 (184)	3.50 (569)
Very Large	3.39 (28)	4.44 (90)	4.91 (78)	4.48 (196)
ALL	2.55 (264)	3.21 (662)	4.15 (451)	3.39 (1377)

* Significance of individual coefficients was tested by using Fisher's formula $t = r\sqrt{(N-2)/(1-r^2)}$.

social class the correlation seems to be slightly stronger among the birth controllers than among the non-controllers. At the same time, among skilled manuals the correlation is stronger than in the other social groups. These differences are not, however, statistically significant.¹⁰ On the whole the coefficients arrived at by Pearson in his study of a thousand families extracted from the British Peerage (5), are very much of the same order. R. R. Huestis and A. Maxwell (6) found the correlation coefficient of $+ .124$ among 638 families sending children to the University of Oregon.

What proportion of the total variance in the number of children born to the second generation can be explained by the family size of the first generation? The answer to this question is provided by computing the coefficients of determination (r^2) multiplied by a 100. These are shown in Table 7 and it will be seen at once that they are rather small. For this the heterogeneity of our material may be partly to blame. Several factors are present which screen the effect of the inheritance of fertility on one hand and of the traditional continuity on the other. Let us concentrate for a while on the inheritance issue. It is an established fact that the age at marriage has

Table 6. Comparison and significance of correlation coefficients between the number of live births and the number of wife's brethren.

SOCIAL CLASS	BIRTH-CONTROLLERS	NON-CONTROLLERS	ALL	CRITICAL RATIO
Non-Manuals	.183 ^a (165)	.125 ^d (99)	.154 ^a (264)	} 0.93
Skilled Manuals	.225 ^a (367)	.203 ^a (295)	.219 ^a (662)	
Semi or Un- skilled Manuals	.153 ^a (221)	.122 ^a (230)	.143 ^b (451)	} 1.29
ALL CLASSES	.199 ^a (753)	.174 ^a (624)	.187 ^a (1377)	

^a P between .05 and .10.

^b P between .001 and .005.

^c P smaller than .001.

^d Not significant at .10 level.

¹⁰ Successive pairs of values were compared by means of Z-test.

SOCIAL CLASS	BIRTH-CONTROLLERS	NON-CONTROLLERS	ALL
Non-Manuals	3.3	1.6	2.4
Skilled Manuals	5.1	4.1	4.8
Semi or Unskilled Manuals	2.3	1.5	2.0
ALL CLASSES	4.0	3.0	3.5

Table 7. Percentage of the total variance explained by wife's family size ($r^2 \times 100$)

tended to increase during the last half century. Consequently, even if fecundity were "perfectly" hereditary, fewer children would be born in the younger than in the older generation. This factor certainly affects the position of the regression line and it might also reduce the size of the correlation coefficient if the incidence of later marriages fell more heavily on the individuals coming from large families. Again, nothing is known about the duration of marriage in the paternal generation and consequently we are not, in fact, comparing *idem cum idem*. In some, admittedly few, cases the parents of our subjects may be still alive and capable of reproduction. In these circumstances, the coefficients should be looked upon as the lowest numerical expression of heredity.

Some light may be thrown on the family tradition aspect of

Table 8. Average number of children planned at marriage according to wife's family size and social class.

WIFE'S FAMILY SIZE	SOCIAL CLASS			ALL
	Non- Manuals	Skilled Manuals	Semi or Unskilled Manuals	
Small	1.89 (19)	2.19 (21)	2.00 (7)	2.04 (47)
Medium	2.26 (27)	2.47 (58)	2.00 (23)	2.31 (108)
Large	2.32 (22)	2.43 (47)	2.55 (30)	2.43 (89)
Very Large	1.75 (4)	2.29 (15)	2.67 (12)	2.35 (31)
ALL	2.15 (72)	2.39 (141)	2.34 (62)	2.31 (275)

the parent-offspring correlation by studying the relationship between the size of the family of origin and the number of children planned at marriage. The latter information has been provided in only about 20 per cent of the marriages included in our sub-sample. In Table 8 the average number of children planned at marriage is shown according to the social class and family size of the wife. The averages increase slightly for medium and large families and then show a tendency to decrease. It may be that people coming from very large families are unfavourably affected by their size and wish, at least at the time of their marriage, to have fewer children, but the differences found are statistically not significant and may be due to sample fluctuations.

SUMMARY

1. The analysis of our material confirms the thesis that family size tends to run through generations.
2. The associations between the number of children born and the size of the family from which the parents themselves come has been found to exist both with respect to the husband's and to the wife's family size, but the effect of the latter seems to be stronger.
3. The relationship holds within each of the three classes studied: Non-Manuals, Skilled Manuals and Semi or Unskilled Manuals. The strength of this relationship does not seem, however, to vary significantly between classes.
4. The presence of positive correlation among "Non-controllers" suggests the view expounded by Karl Pearson and others that human fertility is hereditary in the biological sense of the word. On the other hand the analysis of family planners has shown that family building habits are also "inheritable."
5. The percentage of the total variance in the fertility of the second generation "explained" by the size of the family of the first generation has been found to be comparatively small. In all probability this figure is in fact higher, but the full effect of the independent variable is screened owing to a number of factors which could not be taken into account, such as the age

at marriage, duration of marriage and the practice of birth control in the older generation, etc.

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SOCIAL AND PSYCHOLOGICAL FACTORS AFFECTING FERTILITY

XVIII. THE INTERRELATION OF FERTILITY, FERTILITY PLANNING, AND EGO-CENTERED INTEREST IN CHILDREN¹

MARIANNE DEGRAFF SWAIN AND CLYDE V. KISER

ONE of the hypotheses to be tested in the Study of Social and Psychological Factors Affecting Fertility² states: "The greater the extent to which interest in children is a matter of personal satisfaction, the higher the proportion of couples practicing contraception effectively and the smaller the planned families." As stated, the hypothesis needs clarification on two points. The term "interest in children" should be interpreted as "interest in one's own children." The term "personal satisfaction" should be interpreted as "ego satisfaction." Thus the hypothesis might be stated more accurately as follows: "The greater the extent to which interest in one's

¹ This is the eighteenth of a series of reports on a Study conducted by the Committee on Social and Psychological Factors Affecting Fertility, sponsored by the Milbank Memorial Fund with grants from the Carnegie Corporation of New York. The Committee consists of Lowell J. Reed, Chairman; Daniel Katz; E. Lowell Kelly; Clyde V. Kiser; Frank Lorimer; Frank W. Notestein; Frederick Osborn; S. A. Switzer; Warren S. Thompson; and P. K. Whelpton.

For a more extended analysis of materials presented in this report, see Swain, Marianne DeGraff: *The Interrelation of Fertility Behavior, Ego Interests, and Selected Social Categories*. Ph.D. Thesis, Department of Sociology, Graduate School of Arts and Science, New York University, June, 1951, 109 pp., plus tables and charts. (Unpublished)

² The general purpose, scope, and methods of the Study have been described in detail in previous articles. The Study was conducted in Indianapolis in 1941 and the data for the present analysis relate to an adjusted sample of 1,444 "relatively fecund" couples with the following characteristics: husband and wife native white, both Protestant, both finished at least the eighth grade, married during 1927-1929, neither previously married, husband under 40 and wife under 30 at marriage, and eight or more years spent in a city of 25,000 population or over since marriage. Couples with these characteristics were located by means of a preliminary Household Survey of virtually all white households in Indianapolis.

For purposes of the Study, all couples with four or more live births were classified as "relatively fecund" regardless of other circumstances. Couples with 0-3 live births were classified as "relatively fecund" unless they knew or had good reason for believing that conception was physiologically impossible during a period of at least 24 or 36 consecutive months since marriage (24 for never-pregnant couples, 36 for others). Failure to conceive when contraception was not practiced "always" or "usually" during periods of above durations was considered "good reason" for such belief. Couples not classified as "relatively fecund" were considered "relatively sterile."

children is ego-centered, the higher the proportion of couples practicing contraception effectively and the smaller the planned families."

The above hypothesis stands in contrast to another in the Indianapolis Study which states, "The stronger the interest in, and liking for, children, the lower the proportion of couples practicing contraception effectively and the larger the planned families." Thus it is hypothesized that whereas the presence of an abnormal degree of ego-centered interest in one's own children is associated with small families, a general liking for children (not necessarily one's own) is associated with large families.

This paper presents the data on the first-mentioned hypothesis. It is recognized at the outset that some degree of ego-centered interest in children is a normal attribute. However, common observation supports the view that the strength of this attribute differs by cultures and by individuals. In pre-industrial societies, perhaps notably in the Orient, children are frequently regarded as means of old-age insurance for the parents, as means of perpetuating the family line, and as means of giving comfort to departed paternal souls. These forms of interest in children frequently are cited as factors conducive to high fertility.

The economic, familial, and religious forms of ego-centered interests in children of the above types are not commonly associated with urban Western culture. The modern Western concept is that children are ends in themselves rather than means toward ends. It is a common maxim in psychiatric, family-guidance, and marriage-counseling circles that the child should be reared in a manner conducive to the development of self-reliance and wholesome personality of the child. The hypothesis under consideration is based on the assumption that in varying degrees parents, consciously or unconsciously, regard and use children as means toward meeting their own needs for ego satisfaction. This variable is a nebulous one, except perhaps to the psychiatrist. However, extreme cases are easily

recognized. In their attitudes toward their children the inherently self-centered, the emotionally immature, and the emotionally starved parents may display to their friends, if not to themselves, their attempt to secure attention, recognition, status, and affection.

Although the hypothesis postulates an association of ego-centered interest in children with low fertility, it leaves open the matter of causal sequence. It is recognized that if any relation exists it may be selective as well as determinative. For instance, "the over-mothering which psychiatrists are finding so prevalent among modern small families"³ may be largely the result rather than the cause of low fertility.

The Data. The three types of data needed for testing the central hypothesis under consideration are those of fertility, fertility-planning status, and ego-centered interest in children. The chief measure of fertility used in this report is number of live births per 100 couples. This is not standardized for age, for the data are restricted to couples of virtually similar duration of marriage (12-15 years) with wife under 30 and husband under 40 at the time of marriage.

The classification of couples by fertility-planning status has been described in previous reports.⁴ Briefly stated, it is based upon histories of pregnancies and contraceptive practice and attitudes toward each pregnancy and consists of four broad groups: number and spacing planned, number planned, quasi-planned, and excess fertility.⁵ Couples in the first two cate-

³ Lorimer, Frank; Winston, Ellen; and Kiser, Louise K.: *FOUNDATIONS OF AMERICAN POPULATION POLICY*. New York, Harper and Brothers, 1940, p. 136.

⁴ See especially Whelpton, P. K. and Kiser, Clyde V.: *Social and Psychological Factors Affecting Fertility*. VI. The Planning of Fertility. The Milbank Memorial Fund Quarterly, January, 1947, xxv, No. 1, pp. 63-111 (Reprint pp. 209-257).

⁵ The four categories may be briefly described as follows:

Number and Spacing of Pregnancies Planned. The 403 couples in this group exhibit the most complete planning of fertility in that they had no pregnancies that were not deliberately planned by stopping contraception in order to conceive. The group consists of two major subdivisions: (a) 121 couples practicing contraception regularly and continuously and having no pregnancy, and (b) 282 couples whose every pregnancy was deliberately planned by interrupting contraception in order to conceive.

Number Planned. This group of 205 couples consists mainly of those whose last

(Continued on page 55)

Table 1. Distribution of replies of wives and husbands to questions used as indicators of ego-centered interest in children.¹

QUESTION	REPLY	DISTRIBUTION OF REPLIES			
		Wife		Husband	
		Number	Per Cent	Number	Per Cent
	Total	1,309	100.0	1,309	99.9
1) Do You Want Your Children to be Independent Even If It Means That They May Not Take Your Advice?	Definitely No	61	4.7	195	14.9
	Probably No	88	6.7	159	12.1
	Doubtful	164	12.5	171	13.1
	Probably Yes	497	38.0	426	32.5
	Definitely Yes	499	38.1	358	27.3
	Total	1,309	100.0	1,309	100.0
(2) Do You Get a Big "Kick" Out of Seeing Your Children Do Things They Have Seen You Do?	Definitely Yes	416	31.9	483	36.9
	Probably Yes	524	40.2	517	39.5
	Doubtful	238	18.2	182	13.9
	Probably No	80	6.1	78	6.0
	Definitely No	47	3.6	49	3.7
	No Reply	4			
	Total	1,444	100.0	1,444	100.0
(3) Do Parents Have the Right to Expect That Children Will Appreciate the Sacrifices Parents Make for Them?	Definitely Yes	305	21.2	386	26.7
	Probably Yes	400	27.7	398	27.6
	Doubtful	193	13.4	196	13.6
	Probably No	250	17.3	227	15.7
	Definitely No	294	20.4	237	16.4
	No Reply	2			
	Total	1,309	100.0	1,309	100.0
(4) Is One of Your Greatest Satisfaction in Being a Parent Knowing That, After You Are Gone, Some Part of You Will Live on in Your Children?	Definitely Yes	565	43.2	583	44.5
	Probably Yes	398	30.4	438	33.5
	Doubtful	131	10.0	133	10.2
	Probably No	88	6.7	66	5.0
	Definitely No	127	9.7	89	6.8
	Total	1,309	100.1	1,309	100.0
(5) Could Anything Give You as Much Satisfaction in Life as Having Children of Your Own?	Definitely No	971	74.2	846	64.6
	Probably No	254	19.4	282	21.5
	Doubtful	51	3.9	128	9.8
	Probably Yes	19	1.5	35	2.7
	Definitely Yes	14	1.1	18	1.4
	Total	1,309	100.0	1,309	100.0
(6) When the Going Gets Tough, Is One of Your Greatest Comforts Thinking How Much Your Children Love and Need You?	Definitely Yes	807	61.7	679	52.0
	Probably Yes	369	28.2	418	32.0
	Doubtful	66	5.0	123	9.4
	Probably No	34	2.6	35	2.7
	Definitely No	33	2.5	52	4.0
	No Reply			2	

Table 1 (Continued).

QUESTION	REPLY	DISTRIBUTION OF REPLIES			
		Wife		Husband	
		Number	Per Cent	Number	Per Cent
	Total	1,309	100.1	1,309	100.0
(7) Do You Feel That It Is Fine To Be Able to Live Over Again in the Lives of Your Children?	Definitely Yes	837	64.1	696	53.2
	Probably Yes	338	25.9	418	31.9
	Doubtful	83	6.4	114	8.7
	Probably No	17	1.3	44	3.4
	Definitely No	31	2.4	37	2.8
	No Reply	3			
	Total	1,356	100.0	1,357	100.0
(8) How Much Were You and Your Husband (Wife) Encouraged to Have Your Last (Want a) Child by a "Desire to See What My Own Children Would Be Like?"	Very Much	308	22.7	240	17.7
	Much	148	10.9	151	11.1
	Some	327	24.1	307	22.6
	Little	203	15.0	163	12.0
	Very Little	370	27.3	496	36.6

¹ All questions listed except numbers (3) and (8) were asked only of the 1,309 couples with one or more live births. Question 3 was asked of all couples and question 8 was asked of all fertile couples, and of childless couples with wife pregnant at interview or with the respondent indicating that the couple intended to have a child in the future.

gories are regarded as "planned families" and as having "practiced contraception effectively."

The measures of ego-centered interest in children are based upon "multiple choice" replies of wives and husbands to eight questions. These questions were intermixed with many others in a questionnaire that was filled out by the wife and husband separately in the presence of the interviewer, usually at a pre-arranged evening appointment.

The specific questions and the distribution of the replies are given in Table 1. Although some questions may appear to be

pregnancy was deliberately planned by stopping contraception in order to conceive but who had one or more previous pregnancies under other circumstances. Because of this, the couples are regarded as having planned the number but not the spacing of their pregnancies.

Quasi-Planned. This group includes 454 couples who did not deliberately plan the last pregnancy in the manner described above but who either wanted the last pregnancy or wanted another pregnancy.

Excess Fertility. This group is composed of 382 couples classified as least successful in planning size of family because one or more pregnancies had occurred after the last that was wanted.

more loaded with the "ego" element than others, they collectively imply that "personal satisfaction" is interpreted as expectations of seeing an image, continuation, appreciation, or dominance of parents' ego.

With reference to replies it should first be noted that only the 1,309 couples reporting at least one live birth were required to answer all eight questions. Six questions were restricted to the fertile couples alone. One (number 3) was extended to all childless couples and another (number 8) was asked of childless couples if the wife was pregnant at interview or if the respondent indicated that the couple intended to have a child in the future.

In Table 1, the five possible replies to each question are arranged in order from presumed highest to lowest ECIC (ego-centered interest in children) regardless of whether the reply is "yes" or "no" and regardless of the order of the replies in the original questionnaire.⁶

The distributions of the replies are of interest in themselves. For five of the questions (numbers 2, 4, 5, 6, and 7) the distributions are heavily skewed toward presumed *high* ego-centered interest in children. For one question, number 1, relating to independence of children, the distributions are heavily skewed toward presumed *low* ECIC. It is apparent that the concentrations do not arise from any tendency to answer all questions as "yes" or "no." However, the concentrations do suggest some tendency for the respondents to answer according to the "accepted" or "expected" attitudes toward children. Thus most of the people answered that they: *do* want their children to be independent even if this means that the children will not always take their advice; *do* get a big "kick" out of seeing their children imitate them; *do* think that one of the greatest satisfactions in being a parent is knowing that after they are gone

⁶ In other words, the arrangement of the replies is from low to high code number. Code numbers 1, 3, 5, 7, and 9 were used with low code number for presumed high ECIC and high code number for presumed low ECIC. This was consistent with the general principle of ordering coding according to presumed direction of fertility rates. Thus high ECIC, low fertility, low code; low ECIC, high fertility, high code.

some part of them will live on in their children; *do not* think that anything could give them as much satisfaction as having children of their own; *do* find that when the going gets tough one of their greatest comforts is thinking how much their children love and need them; and *do* feel that it is fine to be able to live over again in the lives of their children.

More of a spread and some bi-modality are shown in the distributions of replies to the questions regarding right of parents to expect children to appreciate the sacrifices made for them (3) and degree to which the wives and husbands were encouraged to have their last child (or to want a child, if childless) by the desire to see what their own children would be like (8). The interests in children are somewhat more ego-centered among husbands than wives according to the criteria of the first four questions but the reverse is true on the basis of the last four questions. Thus, only 11 per cent of the wives but 27 per cent of the husbands stated that they would not want their children to be independent if it meant that they would not always take their advice. It is noteworthy that the ECIC of the husband excels that of the wife according to the criteria of not wanting children independent, enjoying being imitated by children, expecting children to appreciate sacrifices made by parent, and satisfaction of knowing that some part of the parent will live on in the children.⁷ The ECIC of the wife excels that of the husband according to basic satisfaction of having children of one's own, comfort out of having their children love and need them, feeling that it is fine to live over again in the lives of their children, and importance of wanting to see what their own children would be like as a reason for having the last child or for wanting children.

⁷ A previous article has indicated that (a) a significantly larger proportion of husbands than wives in the Indianapolis Study would prefer a son if they could have only one child, and that (b) a somewhat larger proportion of husbands than wives attached importance to "carrying on the family name" as a reason for having children. It is, of course, the husband's family name that is carried on. See Clare, Jeanne E. and Kiser, Clyde V.: *Social and Psychological Factors Affecting Fertility*. xiv. Preference for Children of Given Sex in Relation to Fertility. *The Milbank Memorial Fund Quarterly*, October, 1951, xxix, No. 3, pp. 446 and 456 (Study Series Vol. III, pp. 627 and 637).

Interrelation of Replies. The foregoing comparisons of replies of wives and husbands to the same questions, of course, do not tell us much about the tendency of the two partners to give the same answers. It is also of interest to ascertain the interrelation of replies of each spouse to different questions. Each of these types of interrelations may be considered from the standpoint of "percentage agreement" of replies. We are concerned here with agreement as to the assumed degree of ego-centered interest in children reflected by replies to the questions. Since the five possible replies to each of the questions were coded by score numbers 1-3-5-7-9 from top to bottom as ordered in Table 1, the present task is that of studying agreement of scores.

The data are presented for two levels of agreement—"identical" and "identical or approximate." By "identical agreement" is meant a similar score on any two replies that are compared. By "identical or approximate agreement" is meant a similar

Table 2. Percentage of couples with "Identical" and "Identical or Approximate" agreement between wife's reply and husband's reply to the same question.

QUESTION	PER CENT AGREEMENT	
	Identical	Identical or Approximate
(1) Want Children Independent Regardless?	28.2	66.5
(2) "Kick" From Seeing Children Imitate You?	32.4	77.1
(3) Parents Have Right to Expect Appreciation From Children?	24.6	57.1
(4) "Living On" in Children One of Your Greatest Satisfaction?	35.9	73.0
(5) Anything as Satisfying as Having Children of Your Own?	55.7	85.7
(6) One of Greatest Comforts Thinking How Much Your Children Need You?	47.2	84.9
(7) Fine to "Live Over" in Lives of Your Children?	49.2	83.0
(8) Extent Encouraged to Have Last (Want a) Child by "Desire to See What My Own Children Would be Like?"	24.6	50.1
Average Wife-Husband Agreement on Replies to All Eight Questions	37.2	72.2

score or a score differing by only one step in the scales considered. For example, there is "identical agreement" of two replies coded 7. There is "approximate agreement" if one is coded 7 and the other 5 or 9.

Table 2 presents the percentage of "identical" and "identical or approximate agreements" between replies of wives and husbands to the same questions. It will be noted that the percentage of inter-spouse "identical agreements" is highest (56 per cent) for question number 5 relating to satisfaction in having own children and lowest (25 per cent) for questions 3 and 8, relating respectively to right of parents to expect children to appreciate sacrifices made for them and the extent to which the couple was encouraged to have their last child or to want a child by the desire "to see what my own children would be like." The percentage of inter-spouse "identical and approximate agreements" is also highest (86 per cent) for question 5. The average for all eight questions is 37 per cent "identical agreement" and 72 per cent "identical or approximate agreement."

Table 3 presents data on consistency of replies of the wife to

Table 3. Percentages of "Identical" and "Identical or Approximate" agreement of wife's reply score on different pairs of questions.

QUESTION NUMBER ¹	QUESTION NUMBER ¹								AVERAGE IDENTICAL AGREEMENT
	1	2	3	4	5	6	7	8	
1	x	10.0	23.9	14.7	6.7	8.6	7.7	22.5	13.4
2	32.9	x	25.8	32.5	40.9	38.7	39.5	21.1	29.8
3	55.9	57.5	x	31.7	23.8	29.3	26.0	21.8	26.0
4	34.5	71.0	60.9	x	44.8	7.7	48.5	23.5	29.0
5	17.7	85.4	51.9	74.3	x	58.7	61.5	22.0	36.9
6	22.5	77.4	56.0	19.9	88.5	x	59.2	23.6	32.3
7	19.7	77.4	54.7	78.5	88.9	87.4	x	22.2	37.8
8	55.2	49.9	53.0	49.2	39.8	46.4	41.6	x	22.4
Average Identical or Approximate Agreement	34.1	64.5	55.7	55.5	63.8	56.9	64.0	47.9	55.3

¹ See Table 1 for precise wording of each question.

different questions, and Table 4 gives similar data on replies of the husband to different questions. In each instance the percentages of "identical agreement" are shown above the X diagonal and the percentages of "identical or approximate agreement" below the X diagonal. In general, the consistency of replies of either the wife or husband to *different* questions is somewhat lower than the wife-husband consistency of replies to the same questions (compare Table 2 with Tables 3 and 4). Thus, as compared with a 37 per cent average "identical agreement" of replies of husbands and wives to the same questions, the average percentage of "identical agreement" of replies to different questions is 29 for the wife and 31 for the husband. The corresponding three averages of "identical or approximate agreement" are 72, 55, and 60. The last two figures also indicate that the consistency of replies to different questions was slightly lower for wives than for husbands.

With respect to replies of the wife, the highest percentage of "identical agreement" (62 per cent) was that between replies to the two questions 5 and 7 and the lowest (7 per cent) between questions 1 and 5. The highest percentage of "identical

Table 4. Percentages of "Identical" and "Identical or Approximate" agreement of husband's reply score on different pairs of questions.

QUESTION NUMBER ¹	QUESTION NUMBER ¹								AVERAGE IDENTICAL AGREEMENT
	1	2	3	4	5	6	7	8	
1	x	15.4	25.4	19.7	15.0	19.7	16.3	23.4	19.3
2	40.3	x	26.0	41.3	37.1	41.4	42.8	19.2	31.9
3	54.9	57.3	x	32.7	25.4	31.1	30.8	23.4	27.8
4	40.8	75.3	62.0	x	46.4	51.3	49.8	23.3	37.8
5	36.7	76.9	58.1	78.2	x	53.6	52.6	17.0	35.3
6	40.6	76.4	60.0	83.2	84.3	x	55.2	20.2	38.9
7	37.9	78.8	61.3	82.0	85.9	86.6	x	19.8	38.2
8	46.4	45.1	51.1	48.3	36.5	41.7	41.4	x	20.9
Average Identical or Approximate Agreement	42.5	64.3	57.8	67.1	65.2	67.5	67.7	44.4	31.3
									59.6

¹ See Table 1 for precise wording of each question.

or approximate agreement" (89 per cent) was found in the comparison of questions 5 and 7 and also questions 5 and 6. The lowest percentage of "identical or approximate agreement" of wives' replies (18 per cent) was that between questions 1 and 5.

As noted in Table 4, the percentage of "identical agreement" of husbands' replies was highest (55 per cent) for the pair of questions 6 and 7 and lowest (15 per cent) for questions 1 and 5 and 1 and 2. The percentage of "identical or approximate agreement" of husbands' replies was also highest (87 per cent) for questions 6 and 7 and lowest (37 per cent) for questions 1 and 5 and for questions 5 and 8. For both wife and husband the replies to the question on independence of children show relatively low levels of agreement with replies to other questions. This is apparent not only in the data for specific pairs of questions but also in the averages shown in the last columns and bottom lines of Tables 3 and 4. Thus the average "identical agreement" of wives' replies to one question with replies to all other questions extended from 13 per cent for question 1 to 38 per cent for question 7 (last column, Table 3). The range of "identical or approximate agreement" extended from 34 per cent for question 1 to 65 per cent for question 2 (bottom line of Table 3). The generally low agreement of scores on question 1 with other scores arises in part from the deviant type of skewness of replies to question 1 indicated previously.

Relation of Ego-Centered Interest in Children to Fertility-Planning Status. The first part of the hypothesis stated "the greater the extent to which interest in children is a matter of personal satisfaction (i.e., ego centered), the higher the proportion of couples practicing contraception effectively." The distributions by fertility-planning status according to replies to specific questions are given in Tables 5 and 6. As in Table 1, the replies are ordered from presumably high to low degree of ego-centered interest in children.

As a whole, the distributions fail to indicate much relation between fertility-planning status and extent of ego-centered

Table 5. Per cent distribution by fertility-planning status according to replies of fertile wives and husbands to specific questions assumed to indicate degree of ego-centered interest in children.¹

QUESTION AND REPLY	FOR REPLIES BY WIFE					FOR REPLIES BY HUSBAND				
	Total	Number and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility	Total	Number and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility
(1) <i>Want Children Independent Regardless?</i>										
Definitely No	100	16.4	9.8	45.9	27.9	100	24.1	15.4	29.7	30.8
Probably No	100	17.0	15.9	40.9	26.1	100	13.8	13.8	39.0	33.3
Doubtful	100	20.7	15.2	31.7	32.3	100	24.0	10.5	37.4	28.1
Probably Yes	100	17.7	12.5	38.8	31.0	100	18.8	17.8	36.9	26.5
Definitely Yes	100	26.1	18.8	28.3	26.9	100	24.3	15.4	30.4	29.9
(2) <i>"Kick" from Seeing Children Imitate You?</i>										
Definitely Yes	100	26.4	16.8	32.0	24.8	100	26.5	14.9	31.3	27.3
Probably Yes	100	19.8	13.2	36.8	30.2	100	18.2	14.7	37.3	29.8
Doubtful	100	14.3	15.1	34.5	36.1	100	16.5	19.8	35.7	28.0
Probably No	100	20.0	16.3	33.8	30.0	100	25.6	7.7	34.6	32.1
Definitely No	100	19.1	27.7	31.9	21.3	100	10.2	22.4	28.6	38.8
(4) <i>"Living On" in Children One of Your Greater Satisfaction?</i>										
Definitely Yes	100	19.5	17.3	33.3	29.9	100	19.9	16.0	36.2	28.0
Probably Yes	100	15.6	14.6	37.9	31.9	100	23.5	13.7	33.6	29.2
Doubtful	100	22.9	10.7	36.6	29.8	100	18.0	10.5	34.6	36.8
Probably No	100	42.0	10.2	28.4	19.3	100	24.2	28.8	25.8	21.2
Definitely No	100	29.9	17.3	29.9	22.8	100	20.2	16.9	32.6	30.3

Table 5. (Continued).

QUESTION AND REPLY	FOR REPLIES BY WIFE					FOR REPLIES BY HUSBAND				
	Total	Number and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility	Total	Number and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility
(5) <i>Anything as Satisfying as Having Children of Your Own?</i>										
Definitely No	100	23.2	17.6	33.4	25.8	100	23.2	15.8	35.0	26.0
Probably No	100	15.4	7.5	42.1	35.0	100	18.4	16.3	36.9	28.4
Doubtful	100	11.8	5.9	15.7	66.7	100	18.0	13.3	25.0	43.8
Probably or Definitely Yes	100	21.2	24.2	33.3	21.2	100	11.3	7.5	34.0	47.2
(6) <i>One of Greatest Comforts Thinking How Much Your Children Need You?</i>										
Definitely Yes	100	20.0	16.7	34.2	29.1	100	24.0	15.3	31.1	29.6
Probably Yes	100	20.3	14.4	34.1	31.2	100	14.6	17.7	38.0	29.7
Doubtful	100	19.7	15.2	36.4	28.8	100	23.6	9.8	41.5	25.2
Probably No	100	38.2	5.9	29.4	26.5	100	20.0	17.1	51.4	11.4
Definitely No	100	45.5	3.0	42.4	9.1	100	32.7	9.6	19.2	38.5
(7) <i>Five to "Live Over" in Lives of Your Children?</i>										
Definitely Yes	100	21.6	17.3	35.0	26.0	100	23.1	16.2	32.2	28.4
Probably Yes	100	18.6	12.4	34.3	34.6	100	16.5	12.7	39.7	31.1
Doubtful	100	25.3	9.6	28.9	36.1	100	21.9	23.7	31.6	22.8
Probably or Definitely No	100	25.0	12.5	29.2	33.3	100	27.2	9.9	29.6	33.3

¹ The replies to each question are ordered from assumed high to low ego-centered interest in children. The numbers on which percentages are based are given in Table 1. See also Table 8 (Number of fertile couples).

Table 6. Per cent distribution by fertility-planning status among "fertile couples" and among "all couples," according to replies of wives and husbands to two questions that were not restricted to fertile couples.¹

Question and Reply	Fertile Couples					All Couples				
	Total	Number and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility	Total	Number and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility
(3) Parents Have Rights to Expect Appreciation from Children										
<i>Reply of Wife</i>										
Definitely Yes	100	16.5	14.3	37.2	32.0	100	25.9	13.1	32.8	28.2
Probably Yes	100	21.1	12.4	34.0	32.6	100	28.8	11.5	30.8	29.0
Doubtful	100	20.0	19.4	35.2	25.5	100	31.6	16.6	30.1	21.8
Probably No	100	19.6	14.7	36.3	29.4	100	21.2	14.4	35.6	28.8
Definitely No	100	28.0	18.5	29.5	24.0	100	32.3	17.3	27.9	22.4
<i>Reply of Husband</i>										
Definitely Yes	100	18.8	13.3	34.5	33.3	100	26.4	12.4	31.1	30.1
Probably Yes	100	19.4	17.2	36.1	27.2	100	26.6	16.1	32.7	24.6
Doubtful	100	17.0	15.8	36.3	31.0	100	26.5	13.8	32.7	27.0
Probably No	100	28.5	15.9	32.2	23.4	100	32.2	15.0	30.8	22.0
Definitely No	100	23.7	14.6	32.0	29.7	100	29.5	13.5	29.5	27.4
(8) Extent Encouraged to Have Last (Want a) Child by "Desire to See What My Own Children Would be Like"?										
<i>Reply of Wife</i>										
Very Much	100	23.6	18.2	30.3	27.9	100	25.6	18.2	29.2	26.9
Much	100	20.5	9.8	44.7	25.0	100	29.1	8.8	39.9	22.3
Some	100	21.5	14.7	31.1	32.7	100	24.8	14.1	29.7	31.5
Little	100	24.3	15.3	36.6	23.8	100	24.1	15.3	36.9	23.6
Very Little	100	17.5	15.6	35.5	31.4	100	18.4	15.4	35.1	31.1
<i>Reply of Husband</i>										
Very Much	100	23.0	13.9	33.9	29.1	100	25.8	13.3	32.5	28.3
Much	100	25.9	25.9	29.3	19.0	100	27.8	25.2	28.5	18.5
Some	100	15.2	14.2	41.5	29.1	100	19.5	13.4	39.7	27.4
Little	100	27.1	14.8	28.4	29.7	100	30.7	14.1	27.0	28.2
Very Little	100	20.5	13.7	33.8	32.0	100	21.4	13.9	33.3	31.5

¹ For numerical distributions, See Appendix I.

interest in children as measured by the replies to these questions. The distributions which appear to support the hypothesis by suggesting at least a tendency toward decrease in the proportion of planned families ("number and spacing planned" and "number planned" combined) with lowering of ECIC are those based upon replies of husbands to question 2 ("big 'kick' when children imitate you?") and those based upon replies of wives and husbands to questions 5 ("could anything give as much satisfaction as having children of your own?"); 7 ("do you feel that it is fine to be able to live over again in your children?"); and 8 ("how much were you encouraged to have your last child by a desire to see what your own children would be like?"). The distributions which tend to run counter to the hypothesis are those based upon replies of wives and husbands to questions 1 ("want children to be independent?"); 3 ("parents have the right to expect children's appreciation?"); 4 ("greatest satisfaction knowing you will live on in your children?"); and 6 ("one of your greatest comforts knowing your children love and need you?").

Questions 3 and 8 were the only ones not restricted to fertile couples. One of these (8) fell into the list of those partially supporting the hypothesis but the other (3) did not. This holds for "all couples" as well as for "fertile couples," as indicated in Table 6. The consistently lower proportion of "number and spacing planned" couples among the "fertile couples" than among "all couples" arises from the fact that the childless couples in the Study are by definition restricted mainly to the "number and spacing planned" group. (See footnotes 2 and 5.)

Summary Score of Ego-Centered Interest in Children. Composite or summary scores of ego-centered interest in children were computed for each wife and husband with children in the Study by the simple summation of reply scores to the eight questions. With the previously-described 1-3-5-7-9 possible scores for each question, the total summary score on all eight questions could range from 8 to 72. Codes were assigned for

Table 7. Percentage distribution of "fertile couples" by fertility-planning status, according to score of ego-centered interest in children of the wife and husband.

ECIC STATUS ON THE SUMMARY SCORE		PER CENT DISTRIBUTION BY PLANNING STATUS					NUMBER OF FERTILE COUPLES				
		Total	Number and Spacing Planned	Number Planned	Quasi- Planned	Excess Fertility	Total	Number and Spacing Planned	Number Planned	Quasi- Planned	Excess Fertility
<i>Wife</i>											
High		100	21.9	15.2	35.1	27.8	561	123	85	197	156
Medium		100	17.5	17.2	34.1	31.3	320	56	55	109	100
Low		100	22.9	14.3	33.6	29.2	428	98	61	144	125
<i>Husband</i>											
High		100	24.0	14.5	32.2	29.2	578	139	84	186	169
Medium		100	15.7	20.5	37.3	26.5	351	55	72	131	93
Low		100	21.8	11.8	35.0	31.3	380	83	45	133	119
<i>Wife and Husband Jointly Considered</i>											
<i>Wife</i>											
H	H	100	27.6	13.6	31.6	27.2	294	81	40	93	80
H	M	100	16.0	20.8	36.1	27.1	144	23	30	52	39
H	L	100	15.4	12.2	42.3	30.1	123	19	15	52	37
<i>Husband</i>											
M	H	100	23.3	12.7	30.7	33.3	150	35	19	46	50
M	M	100	8.2	31.5	34.2	26.0	73	6	23	25	19
M	L	100	15.5	13.4	39.2	32.0	97	15	13	38	31
L	H	100	17.2	18.7	35.1	29.1	134	23	25	47	39
L	M	100	19.4	14.2	40.3	26.1	134	26	19	54	35
L	L	100	30.6	10.6	26.9	31.9	160	49	17	43	51

ten class intervals but only three groupings: those of "high," "medium," and "low" ECIC are utilized in this report^{*}. The childless couples are not incorporated since they did not reply to all questions.

Virtually no relation of fertility-planning status to summary score of ego-centered interest of the wife is found (Table 7). A slight but direct relation of fertility-planning status to ECIC status is found in the data for husbands. In this case the proportions of "planned families" ("number and spacing planned" and "number planned" combined) are 39, 36, and 34, respectively, for husbands of "high," "medium," and "low" ECIC status. The differences, however, are not significant at the 5 per cent level. The classifications by the jointly-considered summary scores of ECIC of the wife and husband also yield little relation of this variable to fertility-planning status. The proportions of "planned families" are almost precisely the same (40-41 per cent) for the three groups in which both husband and wife are of "high," "medium," and "low" ECIC status.

In general, therefore, the hypothesis that high ego-centered interest in children is associated with high proportions of planned families finds little support in the data.

Relation of Ego-Centered Interest in Children to Socio-Economic Status and Other Characteristics. A rather marked inverse relation of ECIC status to socio-economic status is found for fertile wives (Appendix II) and fertile husbands (Appendix III). The proportional representation of the "high" socio-economic classes tends to increase with lowering of ECIC status. This relationship is stronger among the planned families with

^{*} The system for the three-fold classification of fertile couples by summary score of ECIC was:

ECIC STATUS	RANGE OF SUMMARY SCORE	NUMBER	
		Wives	Husbands
High	8-27	561	578
Medium	28-32	320	351
Low	33-72	428	380

Table 8. Children ever born per 100 fertile couples by fertility-planning status, and by wives' and husbands' replies to questions relevant to ego-centered interest in children.

QUESTION AND REPLY	CHILDREN EVER BORN PER 100 FERTILE COUPLES						NUMBER OF FERTILE COUPLES			
	Total	Number and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility	Total Planned Families	Number and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility
(1) <i>Was Children Independent Regardless?</i>										
<i>Reply of Wife</i>										
Definitely or Probably No	248	172	250	236	315	207	25	20	64	40
Doubtful	238	182	276	192	300	222	34	25	52	53
Probably Yes	227	147	235	192	312	183	88	62	193	154
Definitely Yes	210	150	216	201	272	178	130	94	141	134
<i>Reply of Husband</i>										
Definitely or Probably No	217	143	262	183	277	194	69	52	120	113
Doubtful	218	139	*	200	317	156	41	18	64	48
Probably Yes	219	150	234	215	263	191	80	76	157	113
Definitely Yes	240	176	216	202	344	192	87	55	109	107
(2) <i>"Kick" From Seeing Children Inside You?</i>										
<i>Reply of Wife</i>										
Definitely Yes	215	143	213	207	304	170	110	70	133	103
Probably Yes	230	165	243	201	303	197	104	69	193	158
Doubtful	227	176	233	194	276	206	34	36	82	86
Probably or Definitely No	228	144	258	200	300	202	25	26	42	34
<i>Reply of Husband</i>										
Definitely Yes	220	164	233	194	297	189	128	72	151	132
Probably Yes	226	151	228	204	298	185	94	76	193	154
Doubtful	233	143	228	218	308	189	30	36	65	51
Probably or Definitely No	219	136	265	188	277	188	25	17	41	44

Table 8. (Continued)

QUESTION AND REPLY	CHILDREN EVER BORN PER 100 FERTILE COUPLES					NUMBER OF FERTILE COUPLES				
	Total	Number and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility	Total Planned Families	Number and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility
(4) "Living on" in Children One of Your Greatest Satisfactions? <i>Reply of Wife</i>										
Definitely Yes	232	151	231	219	302	188	110	98	188	169
Probably Yes	225	165	243	189	288	203	62	58	151	127
Doubtful	221	147	250	196	297	180	30	14	48	39
Probably or Definitely No	203	156	213	183	300	173	75	31	63	46
<i>Reply of Husband</i>										
Definitely Yes	232	151	229	202	329	186	116	93	211	163
Probably Yes	217	149	242	204	274	183	103	60	147	128
Doubtful	233	154	*	200	292	197	24	14	46	49
Probably or Definitely No	208	188	212	189	241	200	34	34	46	41
(5) Anything as Satisfying as Having Children of Your Own? <i>Reply of Wife</i>										
Definitely No	225	156	240	209	298	193	225	171	324	251
Probably No	227	151	*	186	315	169	39	19	107	89
Doubtful	202	*	*	*	241	*	6	3	8	34
Probably or Definitely Yes	197	*	*	*	*	167	7	8	11	7
<i>Reply of Husband</i>										
Definitely No	232	161	235	215	317	191	196	134	296	220
Probably No	196	138	222	170	253	178	52	46	104	80
Doubtful	226	152	*	178	282	185	23	17	32	56
Probably or Definitely Yes	236	*	*	*	288	*	6	4	18	25

Table 8. (Continued)

QUESTION AND REPLY	CHILDREN EVER BORN PER 100 FERTILE COUPLES					NUMBER OF FERTILE COUPLES			
	Total	Number and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility	Total Planned Families	Number and Spacing Planned	Number Planned	Quasi-Planned
(6) One of Your Greatest Complaints Thinking How Much Your Children Need You?									
<i>Reply of Wife</i>									
Definitely Yes	226	148	239	207	295	190	161	115	276
Probably Yes	225	169	223	198	291	194	75	53	126
Doubtful	220	*	*	179	*	178	13	10	24
Probably or									
Definitely No	194	150	*	179	*	152	28	3	24
<i>Reply of Husband</i>									
Definitely Yes	233	154	246	206	319	190	163	104	211
Probably Yes	219	154	224	201	271	193	61	74	159
Doubtful	193	152	*	188	245	161	29	12	51
Probably or									
Definitely No	215	167	*	182	300	183	24	11	28
(7) Fine to "Live Over" in Line of Your Children?									
<i>Reply of Wife</i>									
Definitely Yes	223	156	234	206	294	191	181	145	293
Probably Yes	225	152	211	183	303	184	63	42	116
Doubtful	233	143	*	229	303	162	21	8	24
Probably or									
Definitely No	219	*	*	*	*	189	12	6	14
<i>Reply of Husband</i>									
Definitely Yes	227	160	230	204	305	189	161	113	224
Probably Yes	220	138	249	193	285	186	69	53	166
Doubtful	218	156	211	203	304	185	25	27	36
Probably or									
Definitely No	233	173	*	229	285	190	22	8	24

* Rates not shown if based on fewer than 20 cases.

children than among all couples with children. It is somewhat stronger for husbands than for wives but it will be noted that the criteria of socio-economic status used are husband's longest occupation, husband's average annual earnings since marriage, and index of socio-economic status of the couple.

One of the other characteristics considered is number of brothers or sisters with whom the wife or husband was reared. It might be supposed that wives or husbands who grew up as an "only" child would be more heavily represented in the groups of "high" than of "low" ECIC status. Actually, however, the small differences that do exist are in the opposite direction.

No consistent relation is found between number of years the wife worked after marriage and ECIC status of the wife. The proportion of wives working "9 or more" of the 12-15 years of married life increases with lowering of ECIC of the wife but so also does the proportion working under 2 years or none at all after marriage.

By age, the wives and husbands of "high" ECIC status are a little younger than those of "low" ECIC status. Since all couples had been married 12-15 years at interview, the age at marriage tends to be somewhat lower for wives or husbands of "high" than of "low" ECIC status.

Relation of Ego-Centered Interest in Children to Fertility. The second part of the hypothesis, "The greater the extent to which interest in children is a matter of personal satisfaction (i.e., ego centered) the smaller the planned families" may now be considered. Fertility rates are shown in Tables 8 and 9 by replies of wives and husbands to questions designed to indicate degree of ego-centered interest in children. Table 8 relates exclusively to "fertile couples" and Table 9 presents the data for "all couples" and for "fertile couples" replying to questions 3 and 8. The data are shown separately for the total groups regardless of fertility-planning status, for each fertility-planning group, and for the "planned families" as a group.

Since the hypothesis relates to size of "planned family," attention may first be called to the last column concerning fer-

Table 9. Children ever born per 100 couples and fertile couples by fertility-planning status, and by wives and husbands replies to two questions that were not restricted to fertile couples.¹

QUESTION AND REPLY	FERTILE COUPLES						ALL COUPLES ²					
	Total	Number and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility	Total Planned Families	Total	Number and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility	Total Planned Families
(3) Parents Have Right to Express Appreciation from Children												
<i>Reply of Wife</i>												
Definitely Yes	241	148	258	209	318	195	210	82	245	207	314	137
Probably Yes	231	160	230	198	314	186	206	104	220	194	314	137
Doubtful	228	185	211	203	293	208	195	100	231	203	293	145
Probably No	213	144	228	199	269	180	209	130	228	199	269	170
Definitely No	207	148	222	200	271	177	193	120	222	198	271	155
<i>Reply of Husband</i>												
Definitely Yes	219	145	248	187	283	187	196	92	238	186	280	139
Probably Yes	223	147	218	212	296	180	202	97	211	212	296	140
Doubtful	233	172	256	202	292	213	204	96	256	195	292	151
Probably No	212	157	212	203	290	177	200	132	212	200	290	157
Definitely No	237	165	244	201	331	195	219	123	244	201	331	161
(8) Extent Encouraged to Have Last (a) Child by "Desire to See What My Own Children Would Be Like"												
<i>Reply of Wife</i>												
Very Much	219	127	244	206	295	178	211	113	236	206	295	164
Much	224	167	238	202	306	190	200	105	238	202	306	156
Some	213	160	220	197	264	184	204	132	220	197	261	164
Little	219	171	229	188	310	194	218	171	229	185	310	194
Very Little	239	163	233	208	318	196	236	153	233	208	318	190
<i>Reply of Husband</i>												
Very Much	237	160	238	203	339	189	228	137	238	203	334	171
Much	201	134	242	195	246	188	196	121	242	195	246	179
Some	229	152	239	196	312	194	216	112	239	193	312	163
Little	205	162	196	207	246	174	194	136	196	207	246	155
Very Little	228	158	234	204	294	189	224	149	228	204	294	180

¹ See Appendix 1 for numbers on which rates are based.² Question 3 was answered by all childless couples and Question 8 by childless couples with wife pregnant at interview or respondent indicating intention to have child in the future.

tility rates for all planned families by replies to various questions. Again, for each question, the replies are ordered from the top down in the direction of presumed decreasing degree of ego-centered interest in children. Thus if the hypothesis were borne out, the lowest fertility rates would be at the top and the highest at the bottom within each section. Among fertile couples of "planned family" status, the nearest approaches to this pattern are found in the classifications by replies of wives to questions 2 (" 'kick' from seeing children imitate you?") and 8 ("see what own children are like?"), and by replies of husbands to question 4 ("greatest satisfaction knowing you will live on in your children?"). (See Table 8.)

Results tending to run counter to the hypothesis are found in classifications by replies of wives to questions 1 ("want children to be independent?"); 4 ("greatest satisfaction knowing you will live on in your children?"); 5 ("satisfaction in having own children?"); and 6 ("one of your greatest comforts knowing your children love and need you?") (Table 8).

When the fertile couples of "number and spacing planned" status are considered separately the hypothesis is partially supported in classifications by replies of wives to questions 2, 3, and 8. It is also partially supported in replies of husbands to questions 1, 3, and 4 mentioned above. However, results counter to the hypothesis are found in classification of the "number and spacing planned" group by replies of wives to questions 1 and by replies of husbands to question 2.

Rather striking support of the hypothesis is found in the right-hand section of Table 9 devoted to "all couples" (including the childless) replying to questions 3 and 8. This holds true in the data by replies of wives and husbands within the "number and spacing planned" group and also within the group of "total planned families."

Table 10 points up the role of the childless couples in the fertility differentials by replies to questions 3 among "number and spacing planned" couples and all "planned families." The proportions childless are consistently higher for wives or hus-

REPLIES TO QUESTION ON RIGHT OF PARENTS TO EXPECT CHILDREN TO APPRECIATE SACRIFICES MADE FOR THEM	NUMBER AND SPACING PLANNED				
	Number of Couples		Children Ever Born Per 100 Couples		Per Cent Childless
	All Couples	Fertile Couples	All Couples	Fertile Couples	
<i>Reply of Wife</i>					
Definitely or Probably Yes	194	119	95	155	38.7
Doubtful	61	33	100	185	45.9
Definitely or Probably No	148	125	124	146	15.5
<i>Reply of Husband</i>					
Definitely or Probably Yes	208	135	95	146	35.1
Doubtful	52	29	96	172	44.2
Definitely or Probably No	143	113	127	161	21.0
	TOTAL PLANNED FAMILIES				
<i>Reply of Wife</i>					
Definitely or Probably Yes	280	201	137	191	28.2
Doubtful	93	65	145	208	30.1
Definitely or Probably No	235	212	161	178	9.8
<i>Reply of Husband</i>					
Definitely or Probably Yes	320	243	139	184	24.1
Doubtful	79	56	151	213	29.1
Definitely or Probably No	209	179	159	185	14.4

Table 10. Fertility rates for "all couples" and "fertile couples," and proportions childless, among couples classified as "number and spacing planned" and as "planned families," according to replies of wives and husbands to the question on right of parents to expect children to appreciate sacrifices made for them.

bands replying "definitely or probably yes" to question 3 (presumed to be indicative of "high ego-centered interest in children") than for those replying "probably or definitely no" (presumed to be indicative of "low" ECIC). Although not shown, the proportions childless are consistently higher for wives or husbands stating that they were "very much or much" encouraged to have their last child (or to "want a child," if childless) in order to "see what my own children would be like" than for those replying "little or very little" to this question.*

* The proportions childless by replies to question 8 are not shown since only about one-third of the childless couples, i.e., those pregnant at interview and those stating that they were planning to have a child in the future, were required to reply to question 8.

However, there probably are biases in this question, as is indicated in the following section.

It will be noted from Tables 8 and 9 that the relation of fertility to replies is not always the same for the "number planned" as for the "number and spacing planned" group. This characteristic has been observed in previous analyses of other hypotheses.

The hypothesis is not concerned with the relation of fertility to ego-centered interest in the remaining fertility-planning groups nor in the sample as a whole. These data are shown, however, for purposes of comparison. They indicate similar irregularities and lack of consistent patterns.

Thus the data for specific questions yield no consistent or conclusive evidence that greater ego-centered interest in children is associated with smaller planned families.

Partial support of the hypothesis is found in Table 11 where fertility rates are presented for "fertile couples" according to summary score of ECIC of the wife and husband, considered separately and jointly. Within the "number and spacing planned" group the fertility rate for wives or husbands of "high" ECIC status is smaller than that for wives or husbands of "low" ECIC status. This situation also holds for husbands but not for wives within the group of "total planned families." However, in none of these instances is the fertility rate for the "medium" ECIC group in intermediate position.

Similar situations are found in the classifications based upon joint consideration of wife's and husband's ECIC status (lower section of Table 11). Thus within the "number and spacing planned" group the fertility rate for fertile couples is 141 for couples with both partners of "high" ECIC status and 171 for those of "low" ECIC. Among fertile couples in "total planned families" the rates are 179, 221, and 186, respectively, for couples with both partners of "high," "medium," and "low" ECIC.¹⁰

¹⁰ There appears to be little difference between ECIC of the wife and that of the husband with respect to impact on fertility rates of the "fertile couples."

ECIC STATUS ON THE SUMMARY SCORE	FERTILE COUPLES					
	Total	Number and Spacing Planned	Number Planned	Quasi- Planned	Excess Fertility	Total Planned Families
<i>Wife</i>						
High	228	142	246	212	306	185
Medium	234	173	227	212	297	200
Low	211	160	220	178	285	183
<i>Husband</i>						
High	226	150	244	203	304	186
Medium	223	138	219	205	300	184
Low	222	173	233	194	284	195
<i>Wife and Husband Jointly Considered</i>						
<i>Wife Husband</i>						
H H	222	141	258	210	303	179
H M	228	130	223	221	300	183
H L	240	163	260	206	319	206
M H	224	166	232	209	276	189
M M	252	167	235	220	342	221
M L	237	193	208	211	303	200
L H	235	161	232	185	341	198
L M	201	138	195	183	277	162
L L	200	171	229	165	247	186

Table 11. Fertility rates of "fertile couples" by fertility-planning status, according to summary score of ego-centered interest in children of the wife and husband.

Other Evidence. One or two other types of evidence of the unimportance of the criteria of ECIC presented here to fertility differentials may be mentioned. The couples with one or more live births and childless couples with wife pregnant at interview or indicating intention to have a child in the future were asked to choose from a set of ten factors (relating to various hypotheses in the Study) those that were of first, second, and third importance in encouraging them to have their last child or to want a child. One of the listed factors was "a desire to see what my own children would be like." Among 1,357 couples eligible to reply, only 5 per cent of the wives and only 3.5 per cent of the husbands regarded the "desire to see what my own children would be like" as the most important reason for en-

couraging them to have their last child. The factor was listed as of first, second, or third importance by approximately one-third of the wives and one-fourth of the husbands.¹¹

It is true that the fertility rates rise sharply and consistently with diminishing degree of importance attributed to "desire to see what my own children would be like" as a reason for having the last child. Thus the fertility rates are 150, 161, and 179 live births per 100 couples for those in which the wife ascribed first, second, and third importance, respectively, to the above-mentioned motivation. The rate is 242 for wives who did not include the above as one of the three most important reasons for having the last child. On the basis of husbands' replies the corresponding four fertility rates are 140, 192, 202, and 225.¹² However, it seems clear that selective as well as determinative factors may be present in the above comparisons. That is, the desire to see what one's own children would be like logically would seem to be a stronger motivation for the first than for subsequent pregnancies. In other words, one would expect that wives or husbands attaching first importance to the above factor as a reason for wanting the *last* child would be more heavily weighted by those whose last child was also the first child than would be the case among couples attributing smaller importance to the reason under consideration.

Planning Additional Children. The data in Table 12 fail to indicate any consistent relation of planning of additional children¹³ to summary score of ego-centered interest in children of wives or husbands in completely planned or planned families. This analysis was made by number of live births experienced on the assumption that this variable would be related to the planning of additional children. Among childless wives within

¹¹ Approximately the same proportions (34 per cent of the wives and 29 per cent of the husbands) stated that they were "very much or much" encouraged to have their last child (or to want a child) by the "desire to see what my own children would be like." See distributions of replies to question 8, Table 1.

¹² Clare and Kiser, *op. cit.*, p. 458 (Study Series Vol. III, p. 639).

¹³ The data on planning of additional children in all cases are based upon reply of the wife as to whether the *couple* was planning to have another child (a "child" if childless). It will be recalled that all couples had been married 12-15 years at interview.

Table 12. Planning of additional children in relation to the number of live births and summary score of ego-centered interest in children of the wife and husband.

NUMBER OF LIVE BIRTHS AND ECIC SUMMARY SCORE STATUS	NUMBER AND SPACING PLANNED					TOTAL PLANNED FAMILIES						
	Number of Couples	Per Cent by Replies				Number of Couples	Per Cent by Replies					
		Total	No ¹	Doubtful	Yes ²		Total	No ¹	Doubtful	Yes ²		
<i>Wife</i>												
0 Live Births												
High	75	100	84.0	6.7	9.3	79	100	84.8	6.3	8.9		
Medium	28	100	64.3	17.9	17.8	28	100	64.3	17.9	17.8		
Low	23	100	71.4	14.3	14.3	23	100	71.4	14.3	14.3		
1 Live Birth												
High	77	100	62.4	15.6	22.1	81	100	61.8	14.8	23.4		
Medium	23	100	52.2	0.0	47.8	26	100	46.2	0.0	53.8		
Low	48	100	70.9	12.5	16.7	57	100	63.2	14.0	22.8		
2 Live Births												
High	41	100	73.2	14.6	12.2	94	100	61.7	14.9	23.4		
Medium	26	100	57.7	42.3	0.0	63	100	41.4	17.5	11.1		
Low	45	100	95.6	0.0	4.4	81	100	80.2	1.4	12.4		
<i>Husband</i>												
0 Live Births												
High	73	100	76.8	11.0	12.3	77	100	77.9	10.4	11.7		
Medium	23	100	61.9	23.8	14.3	23	100	61.9	23.8	14.3		
Low	30	100	90.0	0.0	10.0	30	100	90.0	0.0	10.0		
1 Live Birth												
High	83	100	54.2	16.9	28.9	85	100	53.0	18.8	28.2		
Medium	34	100	82.3	5.9	11.8	43	100	69.8	4.7	25.6		
Low	31	100	67.7	6.5	25.9	36	100	63.9	5.6	30.6		
2 Live Births												
High	44	100	81.8	11.4	6.8	103	100	69.9	13.6	16.6		
Medium	21	100	66.7	23.8	9.5	66	100	66.7	15.2	18.2		
Low	47	100	80.8	14.9	4.3	69	100	75.3	10.1	14.4		

¹ Includes "Definitely or Probably No."² Includes "Definitely or Probably Yes."

either the "number and spacing planned" or "planned family" group, the proportion of those stating that they were definitely or probably planning a child was a little lower for those of "high" ECIC (9 per cent) than for those of "low" ECIC (14 per cent).¹⁴ However, the opposite type of relation tends to hold for wives with one or two live births and for husbands of each parity considered. In about half of the cases the wives or husbands of "medium" ECIC exhibit highest proportions "definitely or probably" planning another child and lowest proportions "definitely or probably" not planning a child or another child.

SUMMARY AND DISCUSSION

The Indianapolis Study data yield only very limited support to the hypothesis "the greater the extent to which interest in children is a matter of personal (ego-centered) satisfaction, the higher the proportion of couples practicing contraception effectively and the smaller the planned families."

The multiple-choice replies of wives and husbands to eight questions constituted the bases for classification by degree of ego-centered interest in children. Six of the questions were applied to fertile couples only, i.e., those with one or more live births. Only one question was answered by all couples, including the childless. Another was answered by all the fertile couples and by childless couples only if the wife was pregnant at interview or the respondent stated that the couple planned to have a child in the future.

The analysis of fertility-planning status by replies to specific questions yields no consistent indication that the proportion of planned families increases with ego-centered interest in children. The classifications by replies to several of the questions

¹⁴ Since the analysis is made separately by number of live births, childless couples were introduced and classified by ECIC status on the basis of their replies to question 3. Thus childless couples of "high," "medium," and "low" ECIC status are, respectively, those replying "definitely or probably yes," "doubtful," and "probably or definitely no" to the question regarding right of parents to expect children to appreciate the sacrifices made for them. The ECIC status of "fertile couples," as before, is based upon summary score of replies to all questions.

yield partial support of this part of the hypothesis but in no case is the relationship complete. No relation is found between fertility-planning status and summary score of ego-centered interest of fertile wives (based upon replies to all eight questions). The proportion of planned families decreases slightly with lowering of fertile husbands' ECIC status as determined by the summary scores but the differences are not statistically significant.

The data do provide limited support of the hypothesis that size of planned family is inversely related to ego-centered interest in children. The data by replies to individual questions again provide partial support in some instances and non-support in others. However, the results from the question (number 3) that was asked of all childless as well as fertile couples suggest that childless couples may exhibit a higher degree of ego-centered interest in children than do fertile couples. Furthermore, partial support of the hypothesis is found in the data by size of planned family among fertile couples classified by summary score of ego-centered interest in children.

At least two considerations may account for the lack of stronger relationships than those observed in this study. In the first place the variable in question appears to have been poorly conceptualized and poorly measured. The distributions of the replies have suggested strongly that many respondents replied to some of the questions in terms of what they considered to be "expected" or "accepted." A side analysis indicated that people of high socio-economic status are somewhat more heavily represented in the groups of "low" than of "high" ego-centered interest in children. This may simply mean that these people were more discerning in their replies to the questions and hence somewhat less likely to give the "expected" or "accepted" reply.

In the second place, even if the factor considered were accurately measured it seems doubtful that its relation to fertility-planning and size of planned family is sufficiently strong to show very much in simple classifications by this variable alone.

In other words the many other factors affecting fertility—some operating in one direction and others in another—might easily obscure any relation that this factor may have to fertility behavior.

Appendix I. Number of couples and fertile couples by fertility-planning status and replies of wives and husbands to questions 3 and 8.

Question and Reply	FERTILE COUPLES					ALL COUPLES ¹				
	Total	Number and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility	Total	Number and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility
(3) Parents Have Rights to Expect Appreciation from Children?										
<i>Reply of Wife</i>										
Definitely Yes	266	44	38	99	85	305	79	40	100	86
Probably Yes	356	75	44	121	116	400	115	46	123	116
Doubtful	165	33	32	58	42	193	61	32	58	42
Probably No	245	48	36	89	72	250	53	36	89	72
Definitely No	275	77	51	81	66	294	95	51	82	66
<i>Reply of Husband</i>										
Definitely Yes	345	65	46	119	115	386	102	48	120	116
Probably Yes	360	70	62	130	98	398	106	64	130	98
Doubtful	171	29	27	62	53	196	52	27	64	53
Probably No	214	61	34	69	50	227	73	34	70	50
Definitely No	219	52	32	70	65	237	70	32	70	65
(8) Extent Encouraged to Have Last (a) Child by "Desire to See What My Own Children Would Be Like"										
<i>Reply of Wife</i>										
Very Much	297	70	54	90	83	308	79	56	90	83
Much	132	27	13	59	33	148	43	13	59	33
Some	312	67	46	97	102	327	81	46	97	103
Little	202	49	31	74	48	203	49	31	75	48
Very Little	366	64	57	130	115	370	68	57	130	115
<i>Reply of Husband</i>										
Very Much	280	53	32	78	67	240	62	32	78	68
Much	147	38	38	43	28	151	42	38	43	28
Some	289	44	41	120	94	307	60	41	122	84
Little	155	42	23	44	46	163	50	23	44	46
Very Little	488	100	67	165	156	496	106	69	165	156

¹ All childless wives and husbands replied to question 3. Only those expressing intention to have a child in the future and those with wife pregnant at interview replied to question 8.

Appendix II. Relation of ECIC status of the wife to selected characteristics; data for all fertile wives and for fertile wives in planned families.

CHARACTERISTICS	ALL FERTILE WIVES			FERTILE WIVES IN PLANNED FAMILIES		
	Wife's ECIC Status (Summary Score)					
	High	Medium	Low	High	Medium	Low
Number of Wives (Bases for Percentages)	561	320	428	208	111	159
Per Cent Distribution By:						
<i>Husband's Longest Occupation</i>						
Professional and Managerial	18.0	22.2	30.8	21.6	32.4	44.0
Clerical	23.2	19.4	27.3	29.8	18.0	20.1
Manual Work, Service, etc.	58.8	58.4	41.8	48.6	49.5	35.8
<i>Husband's Average Annual Earnings Since Marriage</i>						
\$2,400 and Over	11.4	18.4	21.7	14.4	29.7	38.4
\$1,600-\$2,399	32.3	25.9	33.2	37.0	24.3	26.4
Under \$1,600	56.3	55.6	45.1	48.6	45.9	35.2
<i>Index of Socio-Economic Status of the Couple</i>						
High SES	9.3	15.0	23.6	15.4	27.0	37.1
Medium SES	41.0	31.3	38.3	45.7	33.3	39.0
Low SES	49.7	53.8	38.1	38.9	39.6	23.9
<i>Number "Sociological Sibs" of Wife¹</i>						
None	10.1	7.8	13.0	10.3	5.4	16.1
1-3	62.1	65.0	60.8	64.2	66.7	63.9
4 or More	27.9	27.2	26.2	25.5	27.9	20.0
<i>Years Wife Worked After Marriage</i>						
9 or More	4.5	5.0	7.2	6.2	7.2	11.3
2-8	30.7	25.6	27.6	48.7	35.1	27.0
Under 2 or None	64.9	69.4	65.2	50.0	57.7	61.6
<i>Personal Adequacy of Wife (Interviewer's Rating)</i>						
Self-Confident or Few Anxieties	53.7	49.7	53.5	63.4	59.5	65.4
Average	23.8	28.4	25.0	15.6	29.7	18.9
Some Worries or Feeling of Inferiority	22.5	21.9	21.5	21.0	10.8	15.7
<i>Age of Wife at Marriage</i>						
Under 19	35.7	36.9	32.2	33.7	37.8	25.2
19-21	37.1	37.8	34.8	37.5	35.1	32.7
22 and Over	27.3	25.3	32.9	28.8	27.0	42.1

¹ See footnote 1, Appendix III.

Appendix III. Relation of ECIC status of the husband to selected characteristics; data for all fertile husbands and for fertile husbands in planned families.

CHARACTERISTICS	ALL FERTILE HUSBANDS			FERTILE HUSBANDS IN PLANNED FAMILIES		
	Husband's ECIC Status (Summary Score)					
	High	Medium	Low	High	Medium	Low
Number of Husbands (Bases for Percentages)	578	351	380	228	127	128
Per Cent Distribution By:						
<i>Husband's Longest Occupation</i>						
Professional and Managerial	15.2	22.5	39.2	19.3	36.2	57.8
Clerical	24.4	20.5	22.9	24.7	17.3	21.9
Manual Work, Service, etc.	60.4	57.0	37.9	56.1	46.5	20.3
<i>Husband's Average Annual Earnings Since Marriage</i>						
\$2,400 and Over	11.6	14.2	26.1	15.2	22.8	47.7
\$1,600-\$2,399	29.1	31.9	33.2	31.4	30.7	28.9
Under \$1,600	59.3	53.8	40.8	53.4	46.5	23.4
<i>Index of Socio-Economic Status of the Couple</i>						
High SES	7.4	11.7	30.8	13.0	21.3	50.8
Medium SES	38.1	39.9	35.3	41.3	42.5	37.5
Low SES	54.5	48.4	33.9	45.7	36.2	11.7
<i>Number "Sociological Sibs" of Husband¹</i>						
None	10.2	13.3	17.7	14.0	16.5	18.0
1-3	60.3	55.0	56.6	59.5	54.3	64.1
4 or More	29.5	31.7	25.7	26.6	29.1	18.0
<i>Personal Adequacy of Husband (Interviewer's Rating)</i>						
Self-Confident or Few Anxieties	57.2	62.0	54.6	70.9	71.7	74.4
Average	25.1	25.1	24.9	16.4	17.3	15.2
Some Worries or Feeling of Inferiority	17.6	12.9	20.4	12.7	11.0	10.4
<i>Age of Husband at Marriage</i>						
Under 21	33.0	27.9	26.3	30.0	19.7	11.7
21-23	35.6	33.0	34.2	38.1	40.9	43.0
24 and Over	31.3	39.0	39.5	31.8	39.4	45.3

¹ Number of brothers and sisters (including half, step, and adopted) sharing husband's parental home while he was 6-16 years of age.

ANNOTATIONS

CHRONIC ILLNESSES TAKE A TOLL¹

THE problem of chronic illness has been given increasing attention in the literature of public health. A recent contribution to the field is an article entitled "Chronic Illnesses Take a Toll" by C. H. Hamilton. The article is a report of a study of health and health services in Wake County, North Carolina. Approximately 2 per cent of the families residing in that county were interviewed for the study. The sample included rural and urban, white and nonwhite families.

It was found that the prevalence of chronic illness in the observed population was 158 per 1,000 persons. The most frequent type of chronic illness was circulatory disease which accounted for 27 per cent of the total chronic illness.

The prevalence of chronic illness was shown for various classifications of the surveyed population. These classifications included age, sex, urban or rural residence, and income.

Age. The characteristic increase in the prevalence of chronic illness with increase in age was evident. The prevalence at all ages was higher than that at specific ages until age 45. The prevalence at ages 45-64 was twice as high as that at all ages and the prevalence at age 65 and older was almost four times as high as the prevalence at all ages.

Sex. The prevalence of chronic illness was shown by sex for persons aged 18 years and older. Females between the ages of 18-44 and 45-64 had 70 per cent more chronic illness than did males of the same ages. After age 65, however, males had slightly more chronic illness than did females.

¹ Hamilton, C. H.: *Chronic Illnesses Take a Toll. Research and Farming*, Spring, 1951, Vol. IX, Progress Report No. 4, pp. 11-12.

Urban or Rural Residence. Compared with urban residents "the chronic illness rates were found to be higher for rural-farm and rural-nonfarm groups, particularly among people over 65 years of age."

Income. The prevalence of chronic illness increased as income decreased. "Families with incomes of \$1,500 per year or less averaged 191 chronic illnesses per 1,000 population. Those with incomes of \$4,000 or more averaged 126 per 1,000."

The cost of caring for the chronically-ill person presents a serious problem to low-income families. It was found that 7.7 per cent of those with chronic illness were hospitalized at some time during the six-month period prior to the study. The average amount paid for medical care for the chronically-ill patient during the same period was \$45.18.

DORIS TUCHER

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TRENDS IN ILLNESS AND MORTALITY¹

"THE longest series of data available on trends of both illness and death is for soldiers in the United States Army for the 130 years since 1820." These data have been presented in a paper entitled: "Trends in Illness and Mortality," by Selwyn D. Collins. The paper also gives data on illness trends among industrial employees for the period 1915 to 1950; tuberculosis mortality in 27 countries for the period 1910 to 1950; and infant mortality in 28 countries for the same period.

U. S. Army Data. The data for the U. S. Army were shown by ten-year periods and by single years. When shown by ten-year periods the data reveal that rates for both illness and death declined greatly over the 130 year period under study. A comparison of the two shows that death rates declined even more rapidly than illness rates. When the data were shown for single years it was evident that although illness decreased with the years, there were periods when there was a sudden rise in rates. These outstanding peaks coincided with three wars: the Civil

¹ Collins, Selwyn D.: Trends in Illness and Mortality. *Public Health Reports*, May, 1952, 67: No. 5, pp. 497-503.

War, the Spanish-American War, and World War I. Mortality rates declined from the Civil War to 1925 with the exception of two wartime peaks. From 1925-1936 the rates were fairly level. After 1936 mortality again showed a decrease. "The predominant diseases causing the high case and death rates during the Civil War and also the high 1898 peak of the Spanish-American War were typhoid fever and diarrheal diseases. The 1918 peak was almost entirely due to the great pandemic of influenza and pneumonia." The data excluded battle casualties and non-battle accidents.

It was possible to compare the mortality rates for the armed forces with those for civilian males of comparable ages. The curves describing the mortality rates for the two groups were fairly similar, but there was a tendency for the civilians to have higher mortality rates than the armed forces personnel.

Industrial Employees. Data on illness were shown for approximately 3,000 employees of a public utility firm for the period 1917-1950, and for approximately 200,000 industrial workers for the period 1921-1950. Data were records of absences from work of one day or longer for the first group and eight days or longer for the second group. Both groups showed data for males and females separately. Males in both groups showed a decline in morbidity until World War II, when the illness rates rose to a peak in 1945 or 1946 and then dropped. Female rates were similar to those for males in the group for which data included illnesses which caused disability of one day or longer. Females in the group which included illnesses which caused disability of eight days or longer did not show a drop in rates after the peak of 1946, but remained consistently high.

Tuberculosis Mortality. Mortality rates from tuberculosis were shown for approximately twenty-seven countries which were classified according to the degree of civilian participation in war. Countries in which civilian participation was the greatest, namely, those which were overrun or heavily bombed, showed periods of high mortality from tuberculosis occurring in about 1918 and again in about 1945. In the periods following these peaks, mortality "declined to a level that represents an approximate extension of the trend before the war." Countries which were overrun, but not bombed, showed "evidences of

retardation in the downward trends of tuberculosis mortality during the war years, but practically no peaks that could be attributed to war conditions." Countries which were at war, but remote from the actual fighting, showed no wartime peaks in mortality.

Infant Mortality. The rate of infant mortality is considered indicative of the economic and sanitary conditions of a country. The infant mortality figures presented in this article corroborate this opinion in so far as war affects the conditions in the country. In the countries in which the war had the greatest intensity, namely, those which were overrun or bombed, there was a rise in infant mortality during the war years. There were no wartime rises in countries removed from the war.

The data in this paper are valuable because they show long-time experience in mortality and morbidity for a considerable population. They also show the trend in mortality in two fields, tuberculosis and infant births, which are affected by the general conditions for health in a country. It was possible, because of the length of the period under observation, to show the deleterious effects that two wars have had upon civilian populations.

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